Introduction

Using Visio Products is part of an integrated documentation set that includes this manual and a comprehensive collection of online help topics designed to present the information you need to create drawings and diagrams in your Visio® application.

About this manual

This manual is organized into categories that parallel how you work in Visio applications, according to the tasks you might perform. The tasks are divided and organized into the following work-focused categories:

Introducing the Visio environment: Chapters 2–3 How to get your drawing on the page. You may never need more than this section to get started in Visio.

Creating the content of your drawing: Chapters 4–9 The details of working with and formatting shapes, lines, and text, and how to easily include data or objects you've created in other programs in your Visio drawings.

Printing and delivering shapes: Chapters 10–13 Once you've created your Visio drawing, you need to get it to your audience—whether you are printing, saving the drawing as an HTML page, displaying drawings in Microsoft Office applications, or including your Visio work in a document created in another program.

Increasing your productivity: Chapters 14–19 How to set up your drawings to make revising them quick and simple. Use templates, styles, and layers to ensure consistency across multiple drawings, and organize shapes into categories so you can work with them more easily in batches, rather than singly.

Working with data stored in shapes: Chapters 20–23 Visio shapes can be containers for data—they can serve as graphical representations of database records or other data files you may already have created for your business.

Creating and customizing shapes: Chapters 24–27 How to create your own shapes, behavior you can add to shapes you draw to make them "smart," and how to add hyperlinks, or "jumps," to shapes.

Getting more information

In addition to this document, much of the assistance you need as you use Visio applications is specific to the shapes and templates you work with onscreen. To give you immediate and targeted information as you work, use these additional sources of information:

Tips To find out what a specific tool or button on one of the toolbars does, float the pointer over it for a moment. A tip appears on the screen.

Shape help For information about the specific features of any Visio shape, right-click the shape, then choose Shape Help from the shortcut menu. (You can print the topic by right-clicking the shape help window.)

Template help To discover the best sequence in which to work in specific templates, or how to work with the shapes or page settings, choose Help > Template Help, double-click Visio Templates, and then choose the drawing type about which you want information.

Online help The Visio online help is available onscreen when you press F1, choose a command from the Help menu, or click Help in a dialog box. The online help also presents information that does not appear in this manual, including a command and tool reference, a programming language reference, and procedures and reference information for working in the Visio ShapeSheet™ spreadsheet.

Developing Visio Solutions *Developing Visio Solutions* contains information for anyone who wants to build custom shapes or solutions with Visio applications. This book describes how to program in the ShapeSheet window and how to extend Visio using Microsoft Visual Basic for Applications (VBA) and Automation. Depending on the Visio product you purchased, you may have received a printed copy of this book in your box. If you did not, or if you are working in a corporate environment in which not all Visio users receive printed books, you can find the .pdf file for *Developing Visio Solutions* on your Visio CD-ROM in a folder called Docs. You can use the .pdf file by first installing Acrobat Reader from your Visio CD, and then opening DVS.pdf in Acrobat Reader.

Drawing Resources This page on the Visio Web site contains links to resources for most drawing types included in the Visio templates. Choose Help > Visio On The Web > Drawing Resources.

Sources for additional information More resources for getting the answers you need to work efficiently in your Visio application include the following:

- To reach Visio and the Visio Knowledge Base using the World Wide Web, choose Help > Visio On The Web > Visio Home Page. Or, use the Visio address: *http://www.visio.com.* The Visio Knowledge Base includes articles that answer frequently asked questions (FAQs) and offer the latest tips on using Visio.
- To reach the Visio forum on CompuServe, use the keywords GO VISIO.

Technical support

If you need more technical support for Visio products, the Visio Technical Support department can assist you. If you call, it's helpful to be at your computer and to have your product serial number available. The serial number is located on your Visio product registration card.

As a registered customer, you receive:

- Ninety days of technical support with the purchase of a new Visio product.
- Thirty days of technical support with the purchase of an upgrade to your Visio product.

The complimentary support period begins when you make your first phone call to Technical Support.

For technical support

Location	Phone	Fax	Hours
In the United States	(541) 882-8687	(541) 882-8446	Monday through Friday 6 a.m. to 5 p.m. PST
In the UK	0800 132 047	0800 132 048	Monday through Friday 9.00 to 17.00 GMT
In Germany	0130 820 485	0130 820 486	Monday through Friday 9.00 to 18.00 CET
In France	0800 906 479	0800 906 481	Monday through Friday 9.00 to 18.00 CET
In Spain	900 992 901	900 992 902	Monday through Friday 9.00 to 18.00 CET
In Sweden	020 794 443	+353 1 2601799	Monday through Friday 9.00 to 18.00 CET
In the Netherlands	060 225 920	+353 1 2601799	Monday through Friday 9.00 to 18.00 CET
In Australia	1800 501 642 +61 2 9333 8247	1800 559 366 +61 2 9333 8199	Monday through Friday 8.30 a.m. to 5.00 p.m. EST
In New Zealand	0800 444 358		Monday through Friday 8.30 a.m. to 5.00 p.m. EST
In South Africa	0800 994 238		Monday through Friday 9.00 to 17.00 GMT
In other countries	+353 1 7060155 (English) +353 1 7060175 (German) +353 1 7060185 (French) +353 1 7060156 (Spanish)	+353 1 2601799	Monday through Friday 8.00 to 17.00 GMT, 9.00 to 18.00 CET

Creating and saving drawings

About creating and saving drawings

Whether your business creates flowcharts, electrical schematics, management drawings, network diagrams, architectural plans, or maps to the company picnic, the Visio® drawing programs have the tools you need—tools everyone in the office can use.

In general, here are the steps you take in Visio to create a drawing:

1. Start a drawing by opening a template.

    A template sets up your drawing page and opens stencils that contain master shapes.

2. Add shapes to your new drawing by dragging them from a stencil to the drawing page or by drawing your own.

    You can create additional shapes with the Visio drawing tools on the Standard toolbar, and open additional stencils to choose from a wider variety of shapes.
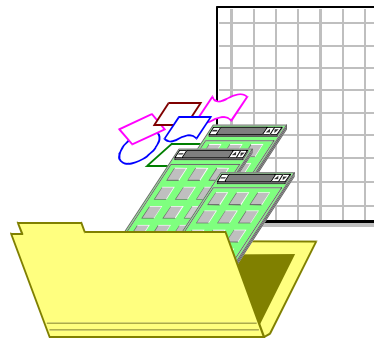
Open a template.

Add shapes.

Arrange shapes.

Glue shapes together.
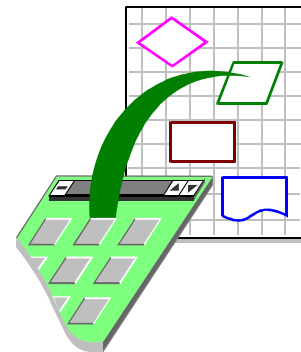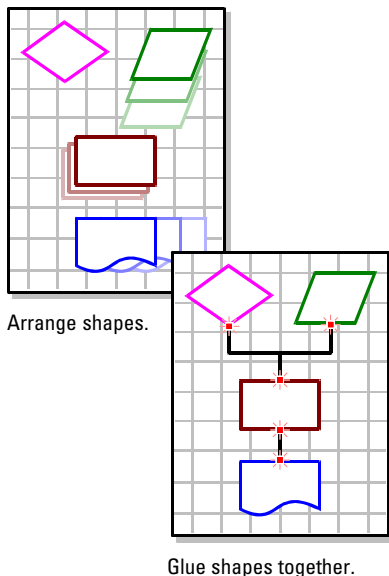
3. Arrange shapes to create the drawing you want.

   Onscreen, the grid helps you align shapes, and the rulers give you precise control. You can place guides and use the Align and Distribute commands for quick alignment, or use the Size & Position command to enter exact co-ordinates and dimensions.

4. Glue shapes together, so they stay connected when you move them.

   With glue, you can update your diagrams quickly, without selecting and dragging every line.

5. Add text to your drawing.

   You can add text to a shape by clicking a shape with the pointer tool, then typing. Or use the text tool to type anywhere on a drawing.

6. Modify the look of shapes.

   Formatting shapes is quick with the tools and style lists on the toolbars and the commands on the Format menu. You can define your own styles in addition to the ones that come with the product.

7. Get your drawing to your audience.

   Your drawing can stand on its own or become part of a larger document, such as a Microsoft PowerPoint slide show, a Microsoft Word publication, or a page on a World Wide Web site.

Related topics

Displaying and hiding toolbars and windows

In Visio, you can decide how you want to work by displaying only the toolbars you need and arranging your windows to see them all at once.

Displaying and showing toolbars

The tools in Visio are grouped on toolbars based on the type of task you perform with them. For example, the Shape toolbar contains tools such as the fill color and align shapes palettes, which you can use to format and arrange shapes. The View toolbar contains tools you can use to choose what you want to see onscreen.

The following toolbars are available in Visio:

Standard Primary tools for dragging, dropping, and drawing shapes, as well as standard Windows-program tools for opening, closing, saving, and printing files.

Text Style lists for text along with tools for choosing format, alignment, size, color, and bullets.

Shape Style lists for lines and fills along with tools for shadows, layout, grouping, stacking order, and rotation.
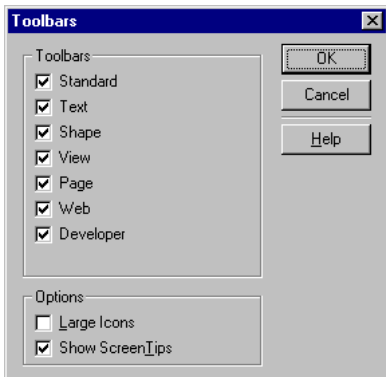
View Buttons for showing or hiding the grid, guides, connection points, and displaying particular layers or layer properties.

Page Buttons for paging forward or back, displaying a particular page, and for turning snap and glue off and on.

Web Tools for inserting hyperlinks, paging forward or back on the Web, opening Internet Explorer, and starting Shape Explorer.

Developer Tools for running macros, displaying the ShapeSheet spreadsheet, opening Visual Basic For Applications, and switching to design mode while working in VBA.

TIP To see what a tool is for, pause the pointer over the tool on the toolbar. A tip appears that describes the tool. If no tip appears, choose View > Toolbars > Toolbars and make sure the Show ScreenTips option is checked.

To show or hide toolbars:

1. Choose View > Toolbars > Toolbars.
2. Check the toolbars you want to view and uncheck those you don't, then click OK.

TIP You can also view and hide toolbars by choosing View > Toolbars or right-clicking the toolbar, then clicking to add or remove a checkmark next to the appropriate toolbar on the menu.

Arranging windows

If you have more than one window open, you can arrange and resize them to see them all.

To display windows side by side:

• Choose Window > Tile.

To arrange windows to see the title bar of each window:

• Choose Window > Cascade.

Related topics

You can make room on your screen by choosing to hide the toolbars you aren't likely to use. You can also choose to show larger icons or see tips about each tool when you pause the pointer over it.

Displaying, moving, and adding stencils

When you start a new drawing by opening a template, Visio opens one or more task-related stencils. Stencils store master shapes, or "masters," that you can drag to the drawing page to add shapes to your drawing. If you need masters that don't appear on an open stencil, you can open additional stencils. By default, stencils are docked to the drawing-page window, but you can display stencils as either docked or floating. Unlike a docked stencil, you can drag a floating stencil to a different location on the screen.

Methods for working with stencils

To	Do This
Switch between stencils	Click the name of the stencil to switch to that stencil.
Open additional stencils	Choose File > Stencils > Open Stencil, choose the stencil you want, then click OK.
Close a stencil	Right-click the stencil's title bar, then choose Close from the shortcut menu.
Make a stencil float	Click inside the stencil where there are no buttons or icons, then drag the stencil away from its docked position. Or right-click the stencil's title bar, then choose Float from the shortcut menu.
Dock a stencil	Click inside the stencil where there are no buttons or icons, then drag the stencil to the left or right side of the drawing window. Release the mouse button when an outline of the stencil appears.
Minimize a floating stencil	Click the minimize button on the stencil's title bar. To expand the stencil again, click the maximize button on the stencil's title bar.
Move a docked stencil from one side of the drawing window to another	Right-click the stencil's title bar, then choose Switch Sides from the shortcut menu.
Change how masters display on a stencil	Right-click the stencil, then choose Icons And Names to display both master shape icons and names, Icons Only to display only master shape icons, or Names Only to display only the master shape names.
Change the order of masters on a stencil	Open the original stencil and drag each master shape icon to arrange them in the order you want.

Related topics

Basing new drawings on templates

You can quickly create the type of drawing you want when you start with a Visio template (*.vst) file. A template includes everything you need to create a drawing, from the drawing page to shapes and styles. Using a template ensures consistency across your drawing files, so you can focus on what goes on the page while the template takes care of the rest.

When you start a drawing with a template, a Visio file opens that contains the following:

- One or more stencils containing related shapes.
- A blank drawing page using a grid and measurement system that's appropriate for the type of drawing you're creating, saving you the time it takes to set up pages.
- A drawing page set up with the correct scale and page size. This applies to scaled drawing types.
- Styles for text, lines, and fills appropriate to the type of drawing you're creating, saving you the time it takes to define your own styles.

NOTE Each template comes with help explaining the most efficient way to use and combine shapes, how to perform specific actions using shape and page right-click menus, how and when to run wizards that automate tasks, and more. To display template help, choose Help > Template Help > Visio Templates, then choose the appropriate template.

A Tools on the toolbars are grouped in functional sets, such as the Standard and Text toolbars. You can choose which toolbars you want to display, saving space onscreen.

B By default, stencils dock to the left of the drawing page. To bring a stencil to the front, click that stencil's title bar, which may be at the top or bottom of the stencil.

C Tips appear when you pause the pointer over tools on the toolbar or control handles on shapes.

D The drawing page opens with size, orientation, scale, grid, and measurements appropriate for the drawing type.

E Stencils contain master shapes that you can drag to the drawing page.

F The drawing page has a drawing grid, which you can use to align shapes.

G The status bar indicates what Visio is doing (for example, printing), and also shows the dimensions and locations of selected shapes.
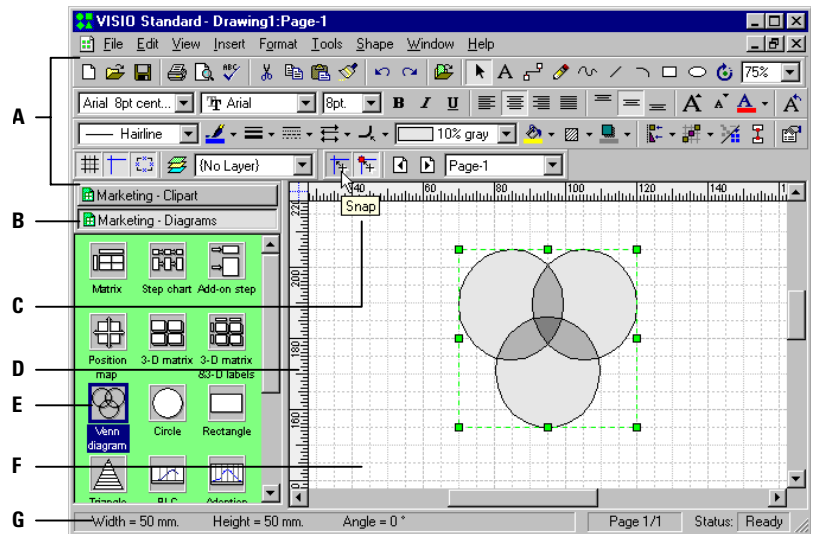
When you start Visio and open a template, the main drawing window opens with a drawing page and one or more stencils.

If the drawings you usually create require settings not available in any Visio template, you can open a drawing with no template, revise an existing template, or create one of your own.
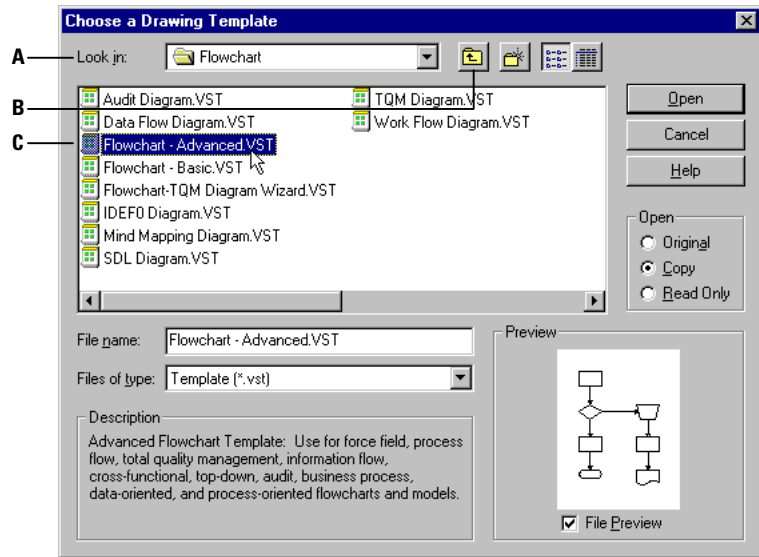
Choose A Drawing Template dialog box

A Choose the type of drawing you want to create.

B Click to browse for other templates or drawing files saved on your computer.

C Choose the template on which you want to base your drawing. The file icon (⬛) indicates which files are template files.

To start Visio and open a new drawing file based on a template:

1. Start Visio by clicking Start, then choosing Programs > Visio.

2. Double-click to open the folder that contains the type of drawing you want to create, choose a template, then click OK.

To open a new drawing file without basing it on a template:

• Choose File > New > Drawing. An unscaled drawing page opens with no stencils.

To display help for a particular template:

• Press F1, click the Index tab, then type the name of the template, or choose Help > Template Help, double-click Visio templates, then choose the type and name of the template you want.

Related topics

Adding shapes to drawings

The easiest way to create a drawing is to drag master shapes (or "masters") from a stencil to the drawing page. When you drop a master on a drawing page, you create an "instance" of the master. The master itself remains on the stencil so you can use it again and again to create instances.

When you drop an instance, Visio snaps the shape to the nearest grid line or ruler subdivision so that you can position it precisely. To place shapes even more accurately, you can zoom in or out from the drawing page. You can also change what you snap to by choosing Tools > Snap & Glue.

If you want to create multiple instances of a master quickly, you can use the stamp tool.
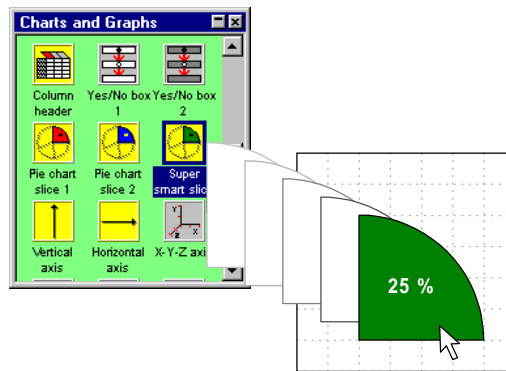
Dragging and dropping to create a drawing is accurate and fast when you use the grid and rulers to position shapes.
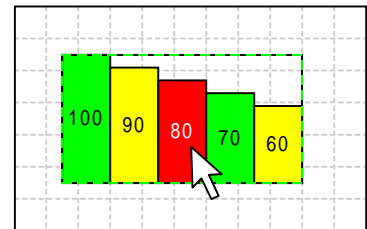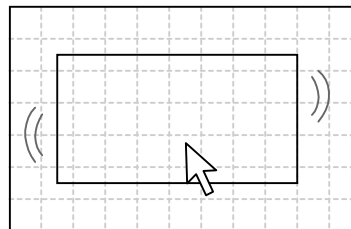
To place the shape more precisely, pause while dragging to see the shape instead of the box or line representing it. The pointer turns white when it's over an object that you can drag.

To drag and drop a shape:

1. Choose the pointer tool (➤) from the Standard toolbar.

2. In the stencil, point to a master.

3. Hold down the left mouse button and drag the master from the stencil to the drawing page.

4. Release the mouse button to drop an instance of the master in the drawing.

To stamp multiple instances:

1. Choose the stamp tool (⊥) from the Standard toolbar.

2. In the stencil, click a master.

3. In the drawing window, place the pointer where you want the shape. The stamp tool places the shape's pin where the pointer is. In most shapes, the pin is in the center of the shape, so you would place the pointer where you want the center of the shape.

4. Click the left mouse button.

   You can continue clicking the page to add as many instances of the stamped shape as you want.

5. When you're done stamping, press the Esc key.

To delete a shape from the drawing page:

1. Select the shape.

2. Do one of the following:

   Choose Edit > Clear.

   Press the Delete key on the keyboard.

To delete a shape from the drawing page and place a copy on the clipboard:

1. Select the shape.

2. Do one of the following:

   Choose Edit > Cut.

   Click the Cut button (✂) on the Standard toolbar.

To display help for a particular shape:

• Right-click the shape, then choose Shape Help from the shortcut menu.

Related topics

Saving drawing files

When you work on a drawing, you should save the drawing file frequently. When you change a stencil or template, you should also save these files.

How you save a Visio drawing file (*.vsd) influences what happens when you next open it. You can

- Enter file properties, such as title, author, keywords, and descriptions. When you save a file for the first time, Visio prompts you for this information. Then, when you select the file name in the Open dialog box, these description and preview properties appear to help you identify the file before opening it. You can view all of the properties by right-clicking the file in Windows, then choosing Properties.

- Save a preview of the first page or all of the pages of the drawing so that you can identify the file before you open it. In the Open dialog box in Visio, you see only the first page. In Windows 95 or Windows NT 4.0 Quick View (right-click a file in Windows, then choose Quick View), you can see all of the pages. Saving previews of all of the pages can increase the file size considerably.

- Save a drawing file as a template (*.vst) that you can use as a model for other drawings.

- Save a drawing file in Visio 4.x format. When you open a 5.0 file in an earlier version of Visio, information specific to Visio 5.0 products will be lost or converted.

- Save a file as read-only to prevent it from being inadvertently edited or changed.

- Export a file in HTML, Windows Metafile, or another format.

- Save the workspace when you save a drawing file. When you next open the file, the stencil and drawing page windows will look just as they did when you saved the file. You can save a workspace as part of a drawing, stencil, or template, or as a separate file (*.vsw).

The first time you save a file, the Save As dialog box appears, in which you can choose a file name, type, format, version, and location.

A Choose the file type, format, and version.

B Check to save the arrangement of stencil and drawing page windows, as well as the file content. This option is checked by default.

C Check to prevent the file from being modified the next time it's opened.
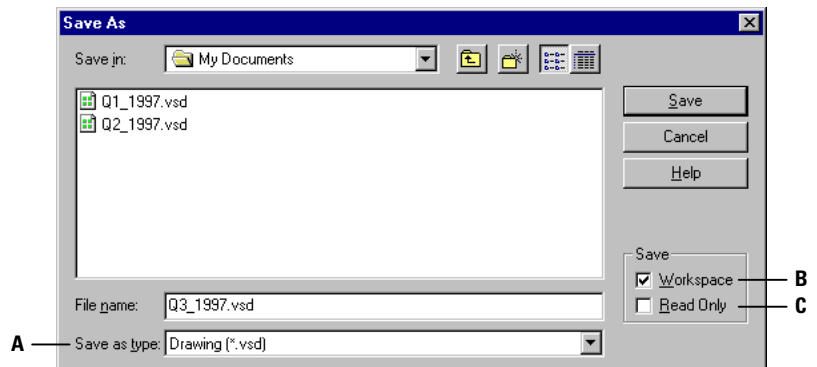
Saving a drawing file for the first time

The first time you save a drawing, Visio prompts you for document properties, including whether or not to save preview pictures, which are small thumbnails of drawing pages. Properties such as the description and the preview picture appear in the Open dialog box when you select the drawing file name.

TIP You can change a file's properties later by choosing File > Properties.

A Displays the title, subject, and author of the file, as well as the author's manager and company. You can type up to 63 characters in each of these fields.

B Displays the category, or type, of drawing file.

C Displays words (up to a total of 63 characters) that identify information about the file, such as project name or version number. Keywords are used by the advanced find feature in Windows 95 and Windows NT 4.0, as well as by Visio Shape Explorer if the file is added to its database.

D Displays information (up to 191 characters) about the file, such as its purpose or recent changes.

E Specifies the base path for any hyperlinks in the file.

F Saves a preview picture in the file to be used in the Open dialog box and in Windows Quick View. None saves the file without a preview, Draft saves the file with a preview picture of the Visio shapes only (does not show embedded objects, text, or gradient fills), and Detailed saves the file with a preview picture of all objects. First Page Only saves a preview of only the first page of the file. This preview shows in the Open dialog box in Visio, allowing you to identify the drawing without opening it. Leaving First Page Only unchecked saves previews of all the pages of the file. These previews show in Windows Quick View.
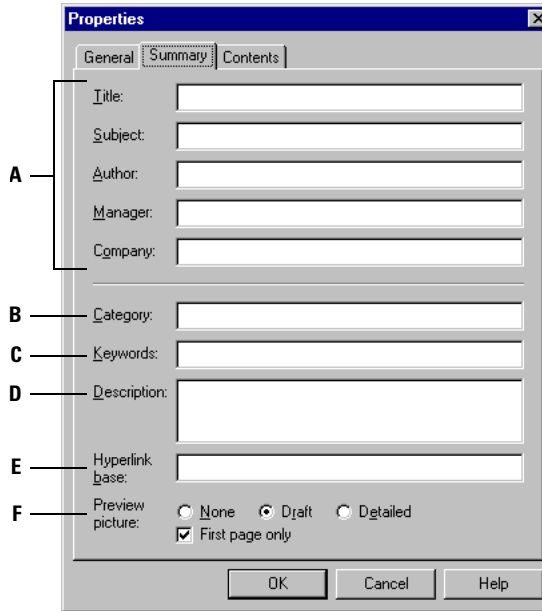
To save a drawing file for the first time:

1. From the File menu, choose Save or Save As.

2. For File Name, type a name for the drawing file.

3. Under Save In, open the folder in which you want to save the file.

4. Click Save.

5. Enter properties information, then click OK to close the Properties dialog box.

TIP To quickly save changes to a file you've already saved, click the Save button on the Standard toolbar or press Ctrl+S. By default, Visio saves existing files in the format in which they were opened. To save in a different format, including earlier versions of Visio, use the Save As command.

Working with pages

About working with pages

You can work with multiple pages in a single Visio drawing file to present and organize your information. Using pages, you can

- Keep related drawings in the same file. For example, for an office expansion project, you could keep the pages that contain office layout drawings in one file and drawings of the distribution of office equipment in another.
- Keep all revisions of a single drawing in one file on successive pages, so that you can show the progression from the beginning of the project to the end.
- Present a series of drawings at full screen view and navigate between them, like a slide show.
- Link pages together like a Web site. For example, you could jump from a workflow diagram shape to a detailed procedure on another page.
- Place items on background pages that you want to appear on every page, such as a company logo.
- Rotate pages to make it easier to edit information that's at an angle, such as a room that isn't square, or a city plan with some streets that are not perpendicular.

As you work with drawing pages in a Visio drawing file, keep the following distinctions in mind: The page you see on the screen is called the "drawing page." You print the drawing on the "printed page," which is the paper in the printer. And the result of printing is the "printed drawing."

Most Visio templates are set up so that the drawing page, printed page, and printed drawing sizes are all the same, so you don't have to change any settings or sizes to get the printed drawing you expect.

In some cases, though, you may change drawing-page settings, such as size, orientation, or scale, as you create your drawing, in which case you'll want to verify that your printed-page settings work with the new drawing-page settings.
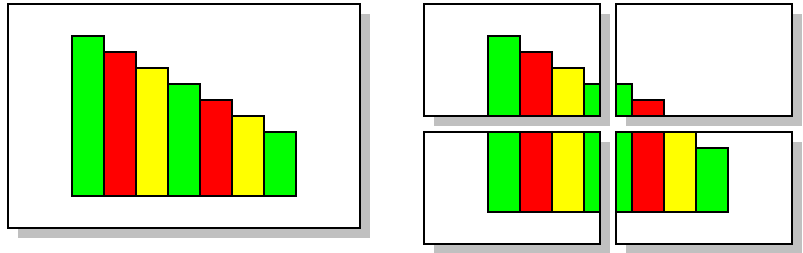
If you print a drawing that is larger than the printed page, the drawing prints across multiple pages. This is called tiling. You can verify whether and where your drawing will break across pages by choosing View > Page Breaks. Gray lines indicate the page breaks.

To avoid printing a large drawing across several tiled pages, you can:

• Change the drawing orientation to see if everything will fit.

• Choose to reduce the drawing by a percentage in the Print dialog box when you print, so that it fits on the current page size.

• Set a drawing scale that represents larger real-world dimensions in a smaller scaled space.

• Choose a larger printed page size.
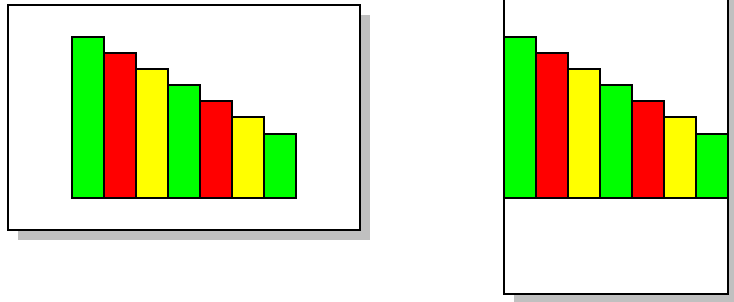
Changes you make to drawing-page settings aren't automatically reflected in printed-page settings. Before you print, make sure settings, such as orientation, are the same for both the drawing page and the printed page. For example, if you change a drawing page's orientation to landscape (left) without changing the printed-page settings from the default portrait orientation, the drawing prints on a portrait page (right).

Setting page orientation and scale

When you start a drawing by opening a template, the template includes page settings for orientation and scale that affect how you work in a drawing and how it prints. Sometimes you may want to change these settings as you work in a drawing.

TIP Changes you make to drawing-page settings aren't automatically reflected in printed-page settings. If you change the drawing-page orientation or scale, check the printed page-settings in the Page Setup dialog box and change them if needed.

Setting page orientation

You can set the orientation of the drawing page to portrait (tall) or landscape (wide) in the Page Setup dialog box.
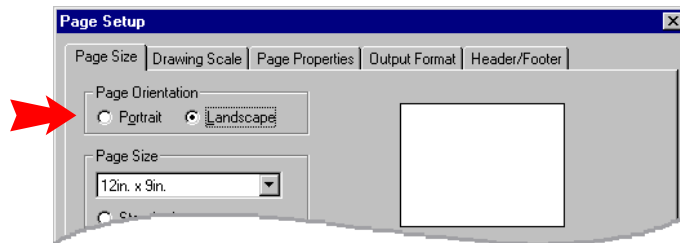
Portrait specifies a tall orientation; Landscape is a wide orientation.

Setting a scale

When you are creating a drawing that represents real-world objects too large to fit at their actual size on a piece of paper, or too small to depict, you must set a "drawing scale." The ratio of the shapes' dimensions as they appear onscreen (page units) to their real-world measurements (page units) defines the scale. For example, in an office plan, the drawing scale might be 1:10, where 1 inch onscreen represents 10 feet in the real world.

A Type the ratio of the page units to the drawing units in the edit box. Or choose from the list of scales relevant to a particular discipline, such as architecture or engineering, then type or choose the ratio you want.

B If the drawing should print at its actual size, select No Scale, then select 100% scale in the Print Setup dialog box.

C Select to change the Drawing Scale list to standard Metric scales, such as 1:100.

D Select to change the Drawing Scale list to Imperial measurements such as $3/32$"=1' 0".

E Select to change the Drawing Scale list to Imperial measurements such as 1" = 10' 0".

F Select to change the Drawing Scale list to Imperial measurements such as $1/32$:1.

G Select to enter a custom ratio of page size to drawing size, then type it in the Drawing Scale edit box. For example, at 1 inch = 25 feet, a shape which measures 1 inch (when printed at 100 percent) measures 25 feet on the Visio rulers.

H Specifies the size of the drawing page, based on the Drawing Scale and the Physical Page Size.

I Indicates the size of the printed page. You can change this setting on the Page Size tab.
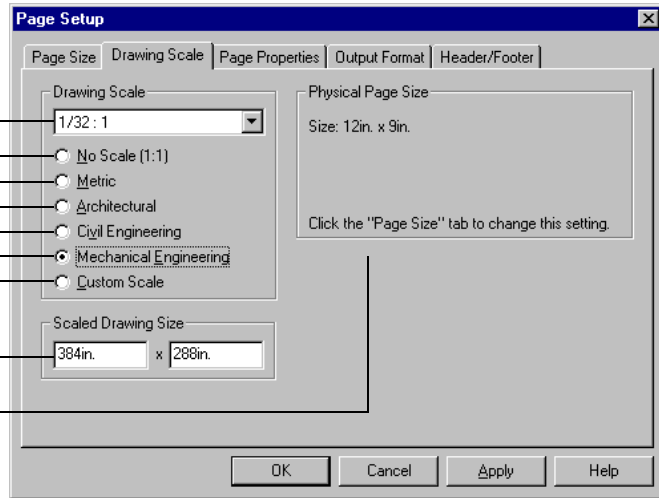
To set drawing orientation and scale:

1. Display the drawing page you want to change, then choose File > Page Setup.

2. On the Page Size tab, select the orientation option you want.

3. On the Drawing Scale tab, select the scale you want or enter a custom scale, then click OK.

To set printed page orientation:

1. Display the drawing page you want to change, then choose File > Page Setup.

2. On the Page Size tab, click Print Setup.

3. Choose the orientation you want for the printed page, then click OK.

Related topics

Rotating and resizing pages

You can rotate pages using the rotation tool and resize them using the pointer tool.

Using the rotation tool, you can easily create drawings in which part of the drawing is at an angle to the rest and work in each part orthogonally, that is, at right angles or parallel to the rulers. For example, you can draw a building that isn't square or a city plan in which some of the streets run at an angle from the rest. Rotating, similar to zooming, is simply a way of viewing your page. It doesn't affect printing or the page orientation you select in the Page Setup dialog box. When you print, the page prints just as it would if it were not rotated. Resizing pages, on the other hand, does affect printing and the settings in the Page Setup dialog box. You can resize pages when you want to add space to or remove space from a drawing.

Rotating pages

When you rotate the page, existing shapes and guides rotate with it. However, the rulers and grid stay at their original angle. Page rotation is disabled by default in all versions of Visio except Visio Technical. You can enable page rotation in the Advanced tab of the Options dialog box.
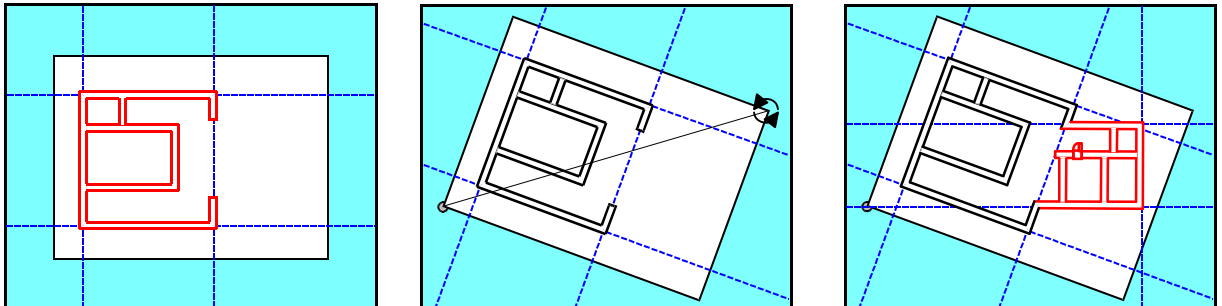
Rotating the page and using rotated guides make it easy to create an angled section in a drawing. You can glue and align shapes to any guide.
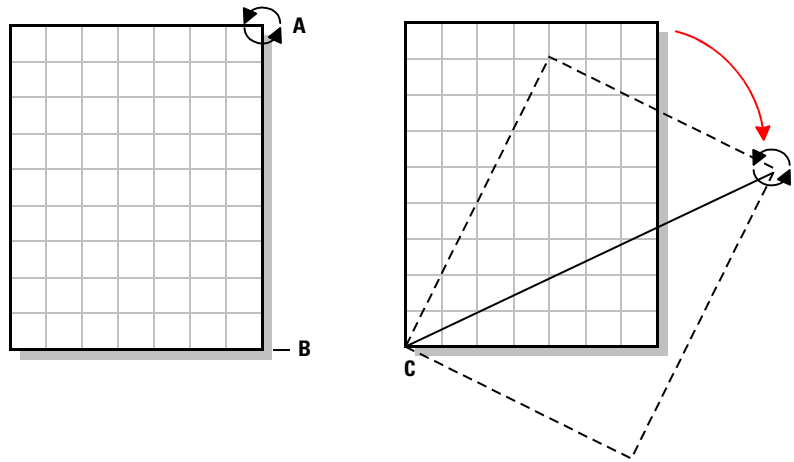
When you move the rotation tool over a page corner, it becomes a round rotation pointer (**A**). The page's drop shadow (**B**) indicates that the page is unrotated. Rotated pages have no drop shadow.

When you drag the round rotation cursor, the page rotates around the zero point (**C**), which is in the lower-left corner by default.
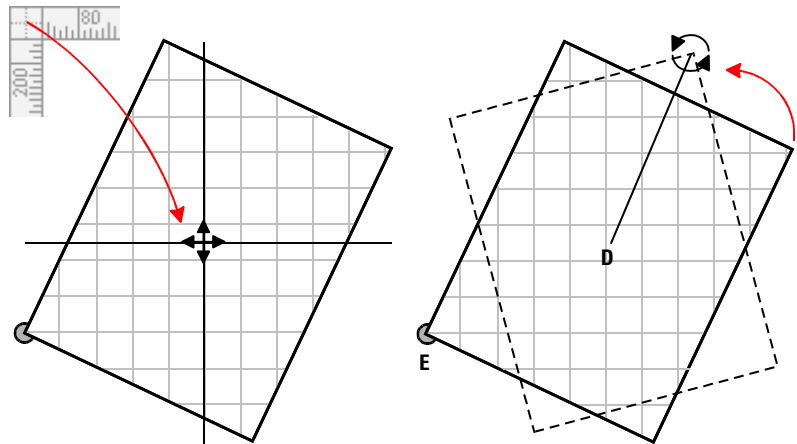
The origin of the rotation is the zero point of the rulers. To change the origin of rotation, move the zero point by Ctrl+dragging the crosshair from the intersection of the rulers to where you want the new zero point.

After you move the zero point (**D**) the center of rotation changes for the page. Rotated pages have a gray non-printing dot at the lower-left corner of the page (**E**). This dot indicates that the drawing is rotated so that you can tell the difference between a landscape page, for example, and a portrait page that has been rotated 90 degrees. When you rotate the page, the dot stays with that corner, so that if you rotated the page upside-down, the dot would then be at the upper-right corner of the page.

To enable page rotation:

1. Choose Tools > Options, then click the Advanced tab.

2. Check Enable Page Rotation, then click OK.

To rotate a page:

1. Make sure that page rotation is enabled, then display the page you want to rotate.

2. Choose the rotation tool () from the Standard toolbar.

3. Position the cursor over a corner of the page.

   The cursor changes to a round rotation pointer ().

4. Drag the corner of the page to the rotation angle you want, then release the mouse button.

TIP To quickly rotate an angled section of your drawing so that it's orthogonal, right click on an angled guide and choose View As Horizontal or View As Vertical.

Resizing pages

Resizing pages enables you to add space to a page where you need it and to remove empty space you're not going to use from a page, both without changing the drawing scale. There are two ways to resize pages:

- Use the Page Setup dialog box to add space to or remove space from the top and right sides of the drawing. For example, if you want more white space around a drawing on which a reviewer can write comments, you can increase the dimensions of the page to create a margin of space on those sides.

- Use the Ctrl key with the pointer tool to remove space from a particular side of the drawing. For example, if you set the page size to be 9 by 12 inches, but discover later that your drawing extends off the right side of the page, you can drag that side of the page out to give yourself more room to draw.
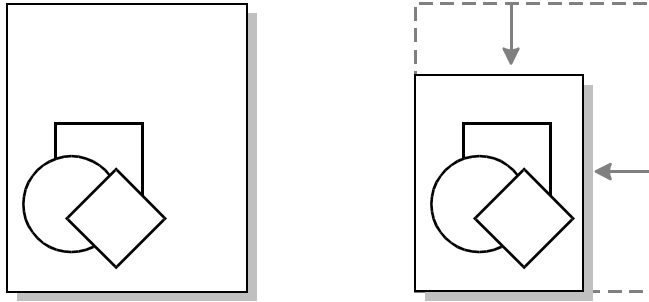
You can use Page Setup to remove an equal amount of space from the top and right sides of a page.
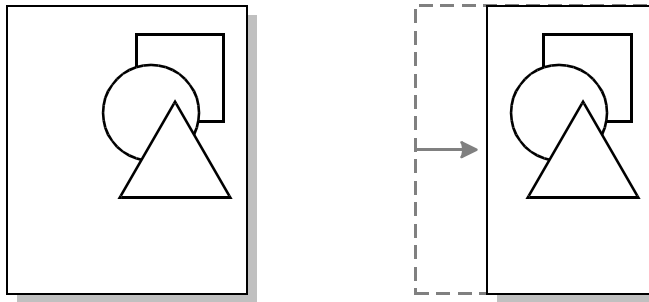
Use the Ctrl key with the pointer tool to remove space from only the side you drag.
In this example, the left side was dragged in to remove extra space.

When you resize a page using either method, the shapes on the page stay in their positions relative to the rulers. In other words, the *x, y* coordinates of the shape remain the same.

When you print, the page prints starting in the top-left corner of the drawing page. Keep this in mind when you resize a drawing page to be larger than the paper you print it on, causing the drawing to be tiled on several pages when you print.

NOTE If the drawing page you resized has backgrounds assigned to it, you must resize each of the backgrounds individually if you want the page sizes to match.

To resize a page using Page Setup:

1. Choose File > Page Setup.
2. On the Page Size tab, type the page dimensions you want or select a page size option, such as Scale Page To Fit Drawing, then click OK.

To resize a page with the pointer tool:

1. Choose the pointer tool (▶) from the Standard toolbar.

2. Position the pointer at the edge of the page on the side you want to move, then hold down the Ctrl key.

   The cursor changes to a double-ended arrow.

3. Drag the page edge to where you want it, then release the mouse button.

   The new page size is reflected in the Page Setup dialog box.

To set the printed page size:

1. Display the drawing page you want to change.

2. Choose File > Page Setup, then on the Page Size tab, click Print Setup.

3. Choose the size you want for the printed page.

   The display at the top of the dialog box shows the effect of your choices.

4. Click OK.

Related topics

Creating multiple-page drawings

For some drawing projects, you may want to create a single drawing file that contains many drawing pages. For example, a file could represent a facilities project with the overall floor plan on one drawing page, a detailed view on another page, and the plan for equipment and furniture on another page. New drawings in Visio open with only one drawing page, but you can add as many new pages as you want.
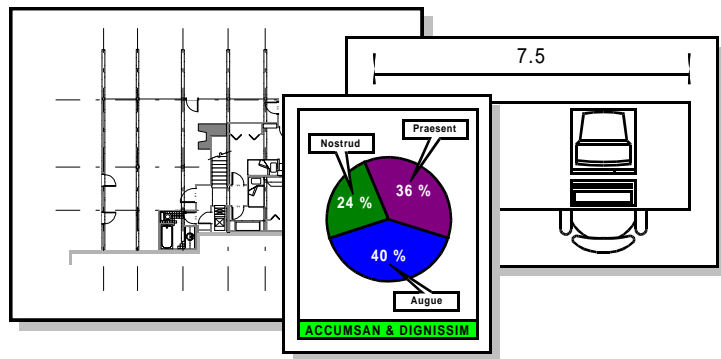
Each page in a multiple-page drawing can have its own settings. For example, each page can have a different drawing scale. Print settings, however, affect all pages.

Creating and deleting pages

When you create a new drawing page, it inherits the size, orientation, scale, measurement unit, shadow offset, and grid settings of the page currently displayed in the drawing window. You can change these settings in the Page dialog box when you insert the page, or later in the Page Setup dialog box.

You can delete pages you no longer need. If you delete the last page in a file, Visio replaces that page with a blank page.

TIP To delete a background page, you first need to cancel its page assignment because a background page assigned to a foreground page cannot be deleted.

To create a new page:

1. Choose Insert > Page to open the Page dialog box.
2. On the Page Properties tab, type a name for the page or use the default name provided by Visio.
3. If necessary, click the Drawing Scale tab to change the scale or the Page Size tab to change the page size for the new page.
4. Click OK.

To delete a page:

1. Choose Edit > Drawing Page > Delete Pages.
2. Choose the page you want to delete.
3. To update default page names to reflect the new page order, check Update Page Names.

   Checking this option has no effect on pages without default names.
4. Click OK.

Navigating between pages

Visio stores pages in the order you create them and displays them one at a time in the drawing window. You can quickly navigate between pages and, if necessary, you can change page order. When you change the order, you can also change page names so they reflect the new arrangement.

You can also add navigational links to drawing pages or shapes that you can use to jump directly to another drawing page.

To navigate to a particular page:

• Choose the page that you want to go to from the Page list on the Page toolbar. You can also use the Next Page (▶) and Previous Page(◀) buttons on the Page toolbar to navigate between pages.

NOTE The Page toolbar is not displayed by default. To display it, choose View > Toolbars > Page.

To rearrange pages:

1. Choose Edit > Drawing Page > Reorder Pages.

2. Choose the page you want to move.

   The list displays the page names in the order they are stored in the file.

3. Click Move Up or Move Down to change the position of the page.

4. To update default page names to reflect the new page order, check Update Page Names.

   Checking this option has no effect on pages for which you changed the names from the default.

5. Click OK.

Displaying pages simultaneously

If you want to view more than one drawing page at a time, you can open each page in its own window. Or you can open a new window so that you can display a new page you create and the original page at the same time.

To display a specific page in its own window:

• Choose Edit > Go To > Page. Select the page, check Open Page In New Window, then click OK.

To open a new drawing window and display a page in it:

1. Choose Window > New Window.

   Choose New Window when a drawing window is open to open a new window that contains a duplicate of the open window's contents.

2. To see all the open windows, choose Window > Tile.

Related topics

Using backgrounds for common page elements

Each Visio drawing contains at least one foreground page and may also contain one or more backgrounds. A background is a page that appears behind another page. Create a background when you want the same shape to appear on more than one drawing page. For example, you can place a common graphical element, such as a company logo or a border, on a background. The element will appear on each page to which you assign the background.
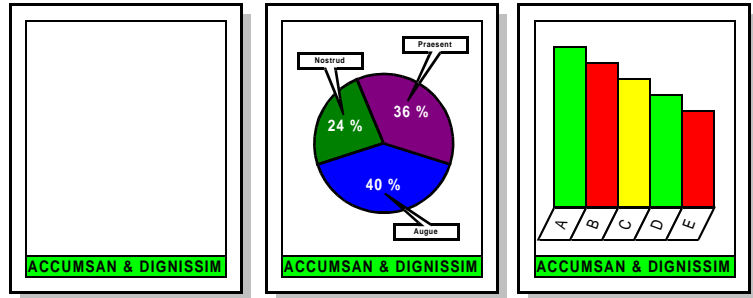
Use a background to repeat a common element on several drawings. For example, on these three pages, the company name is repeated on each one.

You can assign only one background to each foreground, but each background can also have a background, so you can use backgrounds to create a layered effect.

When you assign a background to a foreground page, the shapes on the background are visible when you display the foreground page, but you cannot edit them from the foreground page. To edit the shapes on a background, you display that background in the drawing window, and then edit the same way you edit a foreground page.

TIP If you want to selectively view, edit, print, or lock shapes in a drawing, or if you want to have multiple depths of text and shapes within the same page, use layers instead of a background.

Creating and editing backgrounds

You can create a new page as a background or convert a foreground page to a background. When you create a background, Visio adds it to the list of available backgrounds in the Insert Page and Properties dialog boxes.

You edit the shapes on a background in the same way you edit the shapes on a foreground page. You can display the background in one window and the page it's assigned to in another window, so you can see how the changes affect the whole drawing. You cannot edit shapes on the background in the window that displays the foreground page.

NOTE If you use the Page Layout Wizard to set up a drawing, the wizard automatically creates a background and creates placeholders for elements such as title blocks, borders, and logos. If you want to add any of these elements, you must display the background page to modify it.

To create a background:

1. Choose Insert > Page.

2. On the Page Properties tab, select Background for Type.

3. If necessary, click the Drawing Scale tab to change the scale or the Page Size tab to change the page size for the new page.

4. Click OK.

To convert a foreground page to a background:

1. Display the foreground page you want to convert to a background.

2. Choose File > Page Setup, then click the Page Properties tab.

3. For Type, select Background.

4. Click OK.

To display a background so you can edit it:

•   Display the page to which the background is assigned, then choose Edit > Go To > Background.

TIP You can also display a background in a new window so you can view the background and the pages it's assigned to at the same time. To display a background in a new window, choose Edit > Go To > Page, check Open Page In New Window, then click OK. Then, choose Window > Tile.

Assigning a background page

You can assign one background to each page in a drawing. You can assign the same background to as many pages as you want. If you no longer want a background assigned to a particular page, you can cancel the assignment.

To assign a background to a page:

1. Display the page to which you want to assign the background.

2. Choose File > Page Setup, then click the Page Properties tab.

3. In the Background list, select the name of the background that you want to assign.

4. Click OK.

    The background displays behind the shapes on the foreground page.

To cancel a page's background assignment:

1. Display the page to which the background is assigned.

2. Choose File > Page Setup, then click the Page Properties tab.

3. In the Background list, select None.

4. Click OK.

Related topics

Previewing drawings in full-screen view

If you want to preview or present Visio drawings, you can use full-screen view to maximize the amount of space for your drawing. In full-screen view, the Visio toolbars, title bars, status bar, menus, scrollbars, and stencils are hidden and the drawing page takes up the entire screen. The drawing-page grid is also turned off. Full-screen view is a view-only mode—you cannot edit or change the pages you view.

To enter full-screen view:

• Choose View > Full Screen.

To exit full-screen view:

• Press the Esc key.

To navigate between pages in full-screen view:

• Press the left arrow, Page Up, or P keys on your keyboard to display the previous page.

• Press the right arrow, Page Down, or N keys to display the next page.

• Click the left-mouse button (when it's not over a hyperlink) to display the next page.

• Right-click anywhere in the window and choose Previous Page, Next Page, or Go To > <page name>.

To navigate hyperlinks in full-screen view:

• Click hyperlinked shapes once to jump to the link.

Working with shapes

About working with shapes

In Visio, the term "shape" can refer to one line, arc, or spline; a series of segments; or several shapes grouped together.

Shapes include master shapes, or "masters," that come with Visio, as well as shapes you draw yourself. Visio shapes are programmed to act the way you need them to in a particular context. For example, shapes for doors, windows, desks—things that are built to standard industry sizes—are locked against sizing so you don't accidentally stretch the shapes inappropriately as you are working with them.
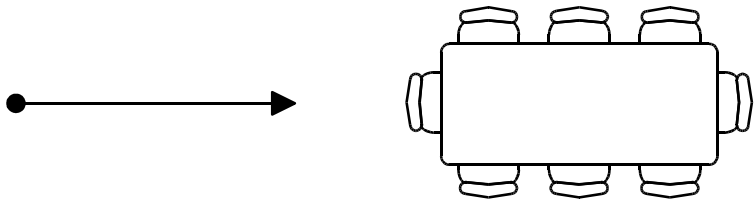
A single line is a shape and so is a rectangle. The table with chairs is a Visio master composed of simpler shapes grouped together.
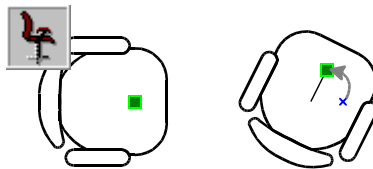
The desk chair is programmed to be easy to rotate.

Closed and open shapes

A shape can be either closed or open. Shapes that are surrounded by a continuous outline, such as rectangles or circles, are closed shapes, which means that you can fill them with colors and patterns. Lines, arcs, or zigzag shapes are open shapes, which means that you can format their ends.
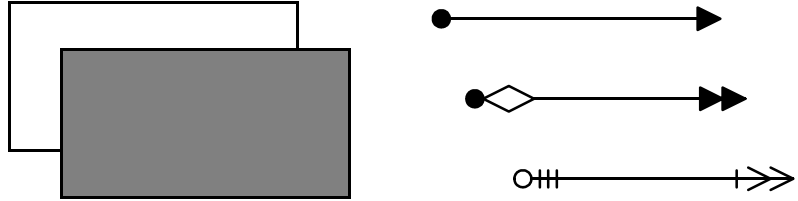
The rectangle, which is a closed shape, is filled with a pattern. The lines, which are open shapes, have line ends applied to them.

1-D and 2-D shapes

A shape can be either one-dimensional (1-D) or two-dimensional (2-D).

A 1-D shape behaves like a line, and displays endpoints that you can drag to resize the shape when you select it with the pointer tool. You can glue the endpoints of 1-D shapes to the sides of 2-D shapes to create connecting lines that stay in place when the shapes are moved.

A 1-D shape has only two endpoints. Some 1-D shapes also have other handles, such as this arc's control handle.

A 2-D shape behaves like a rectangle, and displays selection handles that you can drag to resize the shape when you select it with the pointer tool.

A 2-D shape has more than two handles and can be closed (like the ellipse) or open (like the zig-zag line).

With all shapes, except those that are locked against specific behavior, you can do the following:

- Resize, move, flip, or rotate them.
- Change their stacking order relative to other shapes.
- Format and add text to them.
- Glue them to other shapes and guides.

- Snap them to a guide, guide point, grid, or the alignment box of another shape.
- Revise them by adding segments or changing the way they curve.
- Control how they appear onscreen, whether they print, and how they behave when you double-click them.
- Associate them with data and use the data to generate reports.
- Add jumps to them that go to other pages in the same drawing, to other files, or to World Wide Web sites.
- Control their behavior by modifying their ShapeSheet spreadsheets.

Customizing shapes in the ShapeSheet spreadsheet

To understand what makes a shape smart, it helps to know how shapes are drawn and stored in Visio. Every Visio shape is described in its own ShapeSheet spreadsheet, which contains information about the shape's geometry and other properties. For example, the ShapeSheet contains the coordinates of each shape vertex and the shape's dimensions. Much of this information can be defined by formulas rather than by hard-coded numbers. This is important because it's what makes a shape smart; formulas allow a shape to behave differently based on how it is used, rather than always behaving the same way.
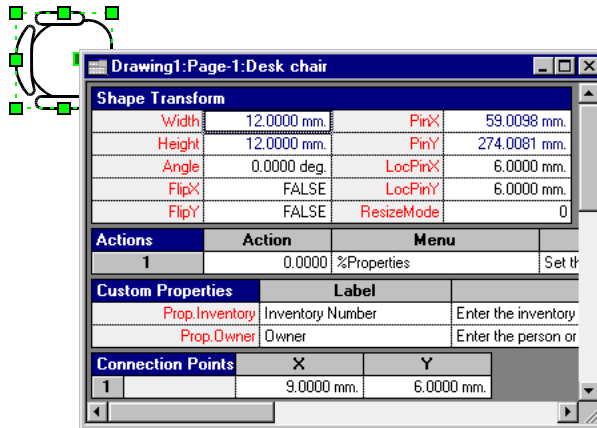
To display a ShapeSheet spreadsheet, select a shape, then choose Show ShapeSheet from the Window menu.

Related topics

Using shape handles

Visio shapes come with a variety of handles that you can drag to modify the shape's appearance, position, or behavior. For example, you can use handles to glue one shape to another, move a shape's text, or change the curve of an arc.

This section discusses the various types of shape handles and how to use them.

Selection handles and endpoints

Selection handles and endpoints appear when you select shapes with the pointer tool ( ) on the Standard toolbar. To resize a shape, drag its selection handles or endpoints.

Most shapes are two-dimensional (2-D) shapes, which have corner selection handles that you drag to resize the shapes proportionally and side selection handles that you drag to resize that side of the shape.
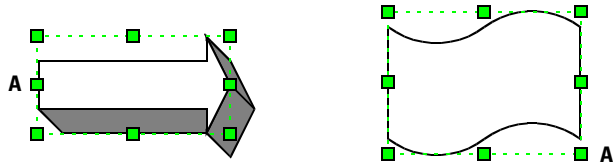
Two-dimensional shapes. The small green boxes on the corners and sides of each shape (**A**) are its selection handles.

Some shapes, including all connector shapes, are one-dimensional (1-D) shapes. One-dimensional shapes have endpoints—a begin point ( ) and an end point ( ).
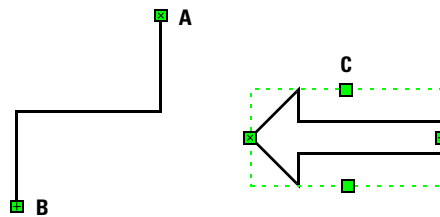
One-dimensional shapes. In addition to begin points (**A**) and end points (**B**), some 1-D shapes have two selection handles (**C**).
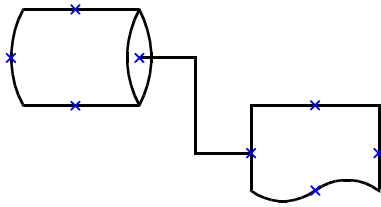
A connection point appears as a blue x on a shape.
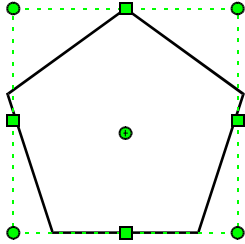
Rotation handles appear as round corner handles. The rotation pin appears as a circle with a plus in the center.
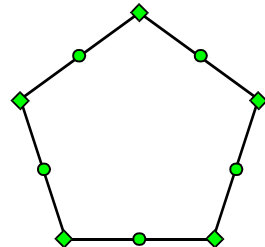
Vertices appear as green diamond-shaped handles. Control points appear as round handles.
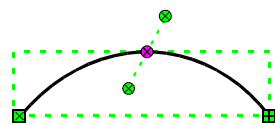
Eccentricity handles appear as circles on each end of a dashed line.

Connection points

Some 2-D shapes have connections points, where you can glue the endpoints of a 1-D shape to the 2-D shape. You an create new connection points using the connection point tool (✕) on the Standard toolbar.

Rotation handles

Rotation handles appear when you select a shape with the rotation tool (↻) on the Standard toolbar. They are indicated by green round corner handles, and a pin, which marks the center of rotation. To rotate a shape, drag a corner handle. To change the center of rotation, move the rotation pin.

Vertices

Vertices appear when you select a shape with the pencil (✏), line (╱), arc (⌐), or freeform (∿) tool on the Standard toolbar. A vertex is marked by a green diamond-shaped handle. To change the form of a shape, drag a vertex with the tool used to create the shape. (The vertex turns magenta to indicate that it's selected.) To add or delete segments, you add or delete vertices using the pencil, line, arc, or freeform tool on the Standard toolbar.

Control points

Control points appear on lines, arcs, and freeform curves when you select them with the pencil tool. These are green round handles that appear between two vertices. You can drag control points to change the curve or symmetry of a segment.

Eccentricity handles

With eccentricity handles, you adjust the angle and magnitude of an elliptical arc's eccentricity. To display eccentricity handles, first select an arc. Then select the pencil tool and click the control point at the center.

Control handles

Some master shapes have control handles that let you work with shapes in ways you can't with standard 1-D and 2-D shapes. The control handle looks like a selection handle with darker shading. Each control handle has a function unique to the shape on which it appears. For example, it may adjust the roundness of a shape's corners or reshape an arrow. To display a tip about what a control handle does, pause the pointer over the control handle.
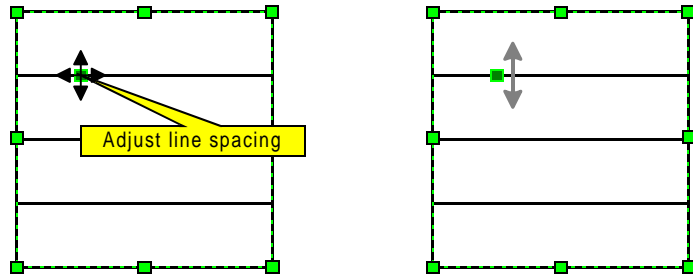
Tips explain the use of control handles. In this example, dragging the control handle (■) adjusts the line spacing. This behavior is programmed into the shape's ShapeSheet spreadsheet.

Padlocks

Padlocks appear in place of corner handles when you select a shape to indicate that the shape is locked against specific changes. Some shapes are locked against flipping, rotating, sizing, or other changes that would destroy their specially programmed behavior. You can lock shapes using the Protection command.

NOTE Padlocks only appear when a shape is locked against sizing or rotating. When a shape is locked against repositioning, deleting, or selecting, no padlocks appear, but you can't perform the action.
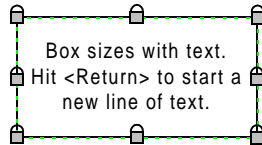
When you select a shape locked against sizing or rotating, the selection handles appear as padlocks.

Related topics

Selecting shapes

To work with a shape you must select it. In most cases you select shapes by clicking them with the pointer tool, but you can also use other tools or drag the pointer tool to create a selection net around multiple shapes.

Methods for selecting shapes

To	Do this
Select one shape	Move the pointer over a shape. When the pointer changes from a black arrow to a white arrow, click to select the shape. The shape's selection handles appear in green.
Select multiple shapes by clicking	Select the first shape, hold down the Shift key, then click to select other shapes one at a time. The primary shape has green selection handles, and all other shapes have blue selection handles.
Select multiple shapes by dragging	Use the pointer tool (▶) from the Standard toolbar and drag a selection net around all of the shapes you want to select.
Select all shapes on the page	Choose Edit > Select All. If there are more than 25 shapes, they appear with a magenta outline to show that they are selected. Otherwise, shapes appear selected as described earler.
Select all of a particular kind of object	Choose Edit > Select Special, then check the type of object that you want to select, such as shapes, groups, or guides.
Cancel a selection	Click away from the selected shape or press the Esc key.
Cancel the selection of one shape when several are selected	Shift+click the shape.

Related topics

Resizing and reshaping shapes

You can change the size and shape of a shape. For example, you can

- Change the width and height of two-dimensional (2-D) shapes.
- Make one-dimensional (1-D) shapes longer, shorter, wider, or narrower.
- Add segments to and delete segments from shapes.
- Change the angle where two segments meet.
- Edit arcs—drawn with the arc tool, pencil tool, or freeform tool—with the pencil tool.

NOTE To resize a shape exactly, use the Size & Position command and then type the shape's height and width dimensions.
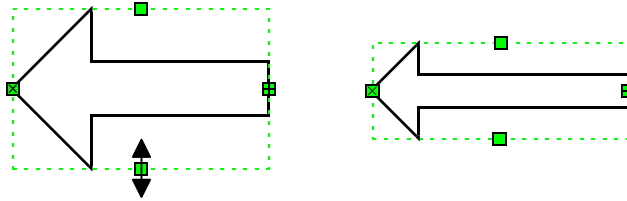
If a 1-D shape has selection handles, you can drag them to change the width of the shape.

Resizing 2-D shapes

A 2-D shape, such as a rectangle, has corner selection handles you can use to resize the shape proportionally and side selection handles you can use to resize that side of the shape. Selection handles appear as green boxes. Examples include most rectangles, ellipses, and freeform shapes.

NOTE If you select a shape and it's selection handles appear gray, the shape is part of a group.

To resize a 2-D shape:

1. Choose the pointer tool (▶) on the Standard toolbar, then select the shape.
2. Drag a selection handle until the shape is the size you want. To resize the shape proportionally, drag a corner handle.

TIP If you see fewer than eight handles on a 2-D shape, zoom in on the drawing to see the rest of the handles and to size the shape more accurately.

Resizing 1-D shapes

A 1-D shape has two endpoints: a begin point (⊠) and an end point (⊞). You can change the size of a 1-D shape by dragging one of its endpoints. 1-D shapes that are not straight lines have selection handles you can use to resize the shape.

To resize a 1-D shape:

1. Choose the pointer tool (▶) from the Standard toolbar, then select the shape.

2. To adjust the shape's length, pause the pointer over an endpoint until it changes to a four-headed arrow, then drag to make the shape the length you want.

   For 1-D shapes that can be adjusted in width, pause the pointer over a selection handle until it changes to a two-headed arrow, then drag until the shape is as wide or narrow as you want.

3. Release the mouse button.

NOTE Changing a 1-D shape's width is not the same as changing its line weight.

Adding or deleting shape segments

A segment is a straight line or curve that is part of a more complex shape. Between each pair of segments is a vertex. You can add segments to shapes to change the way they look. For example, you can turn a triangle into a rectangle. You add a segment by adding a new vertex to an existing segment. You can also delete segments you don't want. For example, you can delete a segment from a rectangle to make it a triangle.

When you delete a segment, Visio redraws the shape based on

- The order in which the shape's segments were created.

- Whether a vertex is at the beginning or end of an open shape.

- Whether the segment that follows the one you delete is a line or an arc.

To add a new segment to a shape:

1. Choose the pencil (✏), freeform (ᔎ), line (╱), or arc tool (◝) from the Standard toolbar, then select the shape.

2. Between two existing vertices on the shape's outline, point to where you want to add the segment.

3. Hold down the Ctrl key and click.

   A new vertex appears where you clicked on the shape, creating a new segment. To make the shape look the way you want, you may need to adjust the shape by dragging vertices and control points.

TIP Zoom in on the drawing so you can clearly see when the pencil is over a line or arc segment.

To delete a segment:

1. With the pencil tool, select the shape.
2. Click the vertex at the end of the segment you want to delete.

    When the vertex is selected, it turns magenta.
3. Press the Delete key, or choose Edit > Clear.

    After you delete segments, you can adjust the shape by dragging vertices and control points.

Changing the angle where two segments meet

By dragging a vertex, you can change the angle at which two segments meet. Dragging a vertex often makes a segment longer or shorter. You can also select several vertices and drag them all at the same time. The selected vertices maintain their position in relation to one another and move in relation to the rest of the shape.

To reshape angles by dragging a vertex:

1. Choose the pencil tool ( ) from the Standard toolbar, then select the shape.
2. Click the vertex you want to move.

    When the pointer is directly over the vertex, it changes to a four-headed arrow. When the vertex is selected, it turns magenta.
3. Drag the vertex to its new position.

To reshape angles by dragging multiple vertices:

1. With the pencil tool, select the shape.
2. Click a vertex that you want to move, then hold down the Shift key and click the other vertices with positions you want to change.
3. Place the pointer over one of the selected vertices, then drag.

    The selected vertices move together, maintaining their relationship.

Reshaping arcs

Every arc drawn with the arc tool (⌐) follows the perimeter of an invisible ellipse. You can change the bow of an arc so the arc becomes a larger or smaller portion of the circle or ellipse—even flatten an arc to make it a line. You can also edit an arc by dragging its eccentricity handles to reshape the ellipse on which the arc is based. You can change the way the arc leans (the angle of eccentricity) or its flatness (the magnitude of eccentricity). An arc has an invisible snap point in the middle of an invisible line between its two endpoints. When you drag the control point to that snap point, the arc becomes a line.

To reshape an arc:

1. Choose the pencil tool (🖊) from the Standard toolbar, then select the arc or the shape that contains the arc.

2. Point to the arc's control point.

3. Drag the control point until the arc looks the way you want.

To change an arc's eccentricity:

1. With the pencil tool, select the arc or the shape that contains the arc.

2. Click the control point on the arc to display the eccentricity handles.

    On circular arcs, the eccentricity handles are under the control point.

    If you don't see the eccentricity handles, hold down the Ctrl key and drag the pointer slightly away from the control point to display them.

3. Edit the arc by doing the following:

    To change the arc's magnitude of eccentricity, drag an eccentricity handle farther from or closer to the control point.

    To change the arc's angle of eccentricity, drag an eccentricity handle around the control point.

Related topics

Moving shapes

You can change the location of a single shape or move multiple shapes so they keep their positions in relation to one another. You move shapes by dragging them. There are a number of ways to ensure that you place your shapes where you want them:

- Faint lines on each ruler indicate the location of the shape or group of shapes. You can also use the grid or guides to help you position shapes.
- If you drag the shape quickly, a rectangle (representing a 2-D shape) or a line (representing a 1-D shape) shows the location of the shape or group of shapes on the page.
- If you pause while dragging and continue to hold down the left mouse button, you'll see the shape or group of shapes instead of the rectangle or line that represents it, so you can position it more precisely.

If you want to place a shape or group of shapes exactly in a certain position, you can use the Shape > Size & Position command and then type the shape's *x, y* coordinates relative to the zero point of the drawing.
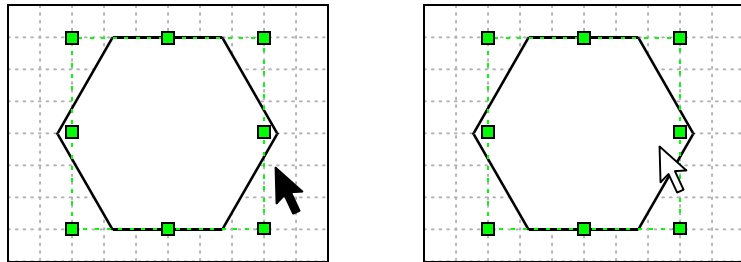
When you move a shape, watch the pointer. If the pointer is black, it's not positioned over the shape, so you cannot move the shape. The pointer turns white to indicate that you can move the shape.

Moving single shapes

To move a single shape:

1. Choose the pointer tool (⬉) from the Standard toolbar, then point to the shape. The pointer turns white.
2. Press the left mouse button, then drag the shape to where you want it. To constrain the movement of the shape to vertical or horizontal, hold down the Shift key while you drag the shape.

   If snapping is on, the shape may jump into place.

TIP Be careful not to point to a selection handle. If you accidentally resize a shape, choose Edit > Undo (or press Ctrl+Z).

Moving multiple shapes

If several shapes are related to each other, you may want to move them together. To keep them aligned as you move them, glue the shapes to a guide, then move the guide. You can group some shapes first, so that even shapes that don't actually touch the guide move with it.
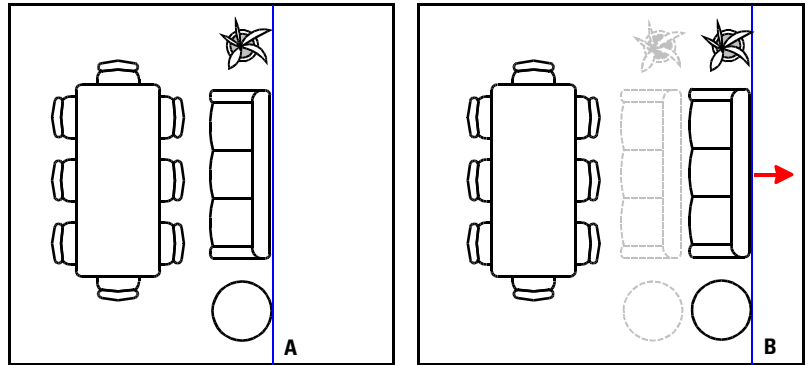
When shapes are glued to a guide (**A**), you can move the guide to make several adjustments to the drawing at once (**B**). In this example, the shapes that represent the plant, couch, and side table are glued to a guide, which is then moved to the right to put more space between them and the table shape.

To move multiple shapes:

1. Select the shapes you want to move.

2. Place the pointer over one of the shapes. The pointer turns white.

    If one of the objects you're moving is a group, the pointer needs to be over one of the shapes in the group in order to turn white.

3. Drag the shape to its new position. All selected shapes move the same distance and direction from their original positions.

TIP To constrain the movement of the shapes to vertical or horizontal, hold down the Shift key while you drag the shapes.

To use a guide to move several related shapes:

1. Choose Tools > Snap & Glue, then in the Snap & Glue dialog box make sure Guides is checked in the Snap To and Glue To lists.

2. Drag a guide from the appropriate ruler and glue shapes to the guide. Shapes' endpoints and selection handles turn red when glued.

3. Drag the guide to the shapes' new location.

Related topics

Working with shapes in groups

In Visio, you can group shapes so they function as a unit. It's useful to group shapes when you regularly use them together. You can group any combination of Visio shapes and shapes you draw yourself. Groups can also include guides, other groups, and objects from other programs.
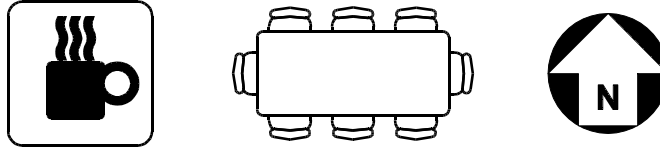
Some Visio shapes are groups—that is, a set of shapes grouped to form a single shape.

Keep these points in mind as you work with groups:

- You can manipulate groups or individual shapes, including formatting, moving, rotating, flipping, and reversing. You can also set behaviors for how an individual shape acts in relation to the group it belongs to.

- When you create a group, Visio builds a group ShapeSheet spreadsheet, which describes the group's attributes, but not those of the individual shapes within it. Each shape in the group retains its own ShapeSheet spreadsheet; Visio puts references to the group ShapeSheet spreadsheet into the individual shapes' ShapeSheet spreadsheets. When you ungroup shapes, Visio discards the group's ShapeSheet spreadsheet.

- If you add a guide and the shapes glued to it to a group, be sure to select both the guide and shapes before you add them to the group; otherwise the glue breaks. You can add guides to rotated groups only when the group is displayed in the group window, which is where you can edit the shapes that make up the group.

- Bitmaps or other imported objects cannot be rotated even when you rotate the group that contains them. To rotate an imported object that is not a bitmap, you must first convert it to a Visio group.

- After you reposition, add, or delete individual shapes within a group, the alignment box that appears when you select a group may no longer fit its dimensions. To adjust it, choose Tools > Update Alignment Box.

Methods for working with groups

To	Do this
Group shapes and objects	Select the shapes and objects you want to group. Choose Shape > Grouping > Group
Ungroup shapes and objects	Select a group, then choose Shape > Grouping > Ungroup.
Open a group so that you can work with the shapes in it	Select a group, then choose Edit > Open Group to open the group window.
Add a shape to a group	Select the group. Press the Shift key and select the shape you want to add. Choose Shape > Grouping > Add To Group. You can also open the group window as described above, then drag a shape from the drawing page or a stencil into the group window.
Remove a shape from a group	Select the group, then click the shape you want to remove to subselect it. Choose Shape > Grouping > Remove From Group.

Related topics

Flipping and reversing shapes

You can change the direction shapes face by flipping or reversing them.
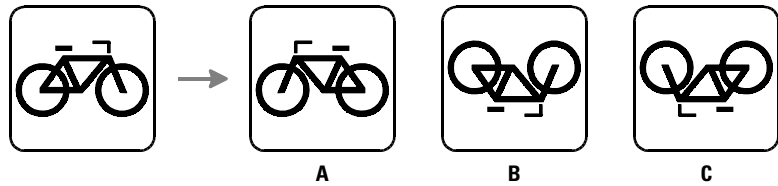
A Flipping shapes horizontally.
B Flipping shapes vertically.
C Reversing ends to flip shapes both horizontally and vertically.

Methods for flipping and reversing shapes

To	Use this tool	Do this
Flip a shape		Select the shape. From the Shape menu, choose Flip Vertical (Ctrl+J) or Flip Horizontal (Ctrl+H).
		Or select the shape and click the flip vertical or flip horizontal button on the Shape toolbar.
Reverse a shape		Select the shape. Choose Shape > Reverse Ends.
Flip or reverse a group		Flip or reverse as you would any shape.
Flip or reverse a shape within a group		Select the group, then choose Edit > Open Group. In the group window, flip or reverse individual shapes as you would any shape. Click the group window's close box.

Rotating shapes

You can change the angle of shapes by rotating them in one of two ways: You can use commands or buttons to rotate in 90-degree increments, or you can use the rotation tool to rotate the shape at any angle. As you rotate shapes with the rotation tool, the status bar at the bottom of the Visio window displays the exact angle of rotation.
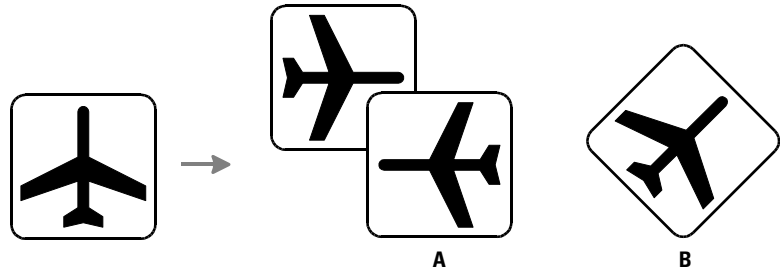
A Rotate Left and Rotate Right rotate a shape in 90-degree increments.
B With the rotation tool, you can rotate a shape at any angle.

Keep these points in mind as you rotate shapes:

- You can rotate a 1-D shape by dragging one of its endpoints with the pointer tool ( ). However, it's easy to resize the shape when you do this. If you don't want to resize the shape it's better to use the rotation tool.
- You cannot rotate imported bitmaps or OLE objects.
- For precise rotation of a shape, use the Shape > Size & Position command to enter a numerical value for angle.

Methods for rotating shapes

To	Use this tool	Do this
Rotate a shape 90 degrees		Select the shape. Choose Shape > Rotate Left (Ctrl+L) to rotate counterclockwise or Rotate Right (Ctrl+R) to rotate clockwise. Or select the shape, then click the rotate right or rotate left button on the Shape toolbar.
Rotate a shape by any amount		Click the shape to select it. Drag a rotation handle. For more control, drag the pointer farther from the rotation pin.
Rotate a group		Rotate as you would any shape.
Rotate a shape within a group		Select the group, then choose Edit > Open Group. In the group window, rotate individual shapes as you would any shape. Click the group window's close box.

Changing the center of rotation

When you select a 2-D shape with the rotation tool, a plus sign in a circle appears at the center of rotation, which is usually at the center of the shape's selection rectangle. You can move the center of rotation, called the pin, to rotate a 2-D shape around any point in the drawing window. To do this, select the shape with the rotation tool, then drag the pin to a new location.
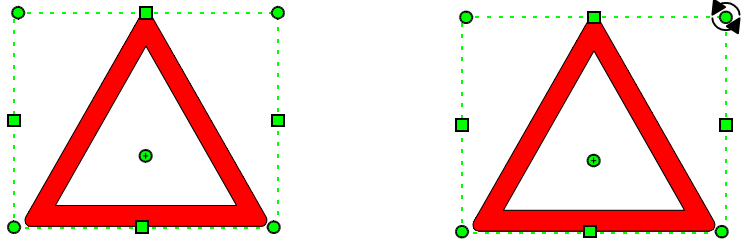
When you select a shape with the rotation tool, rotation handles appear in the corners and a pin (center of rotation) appears in the center. As it moves over a rotation handle, the pointer changes to a round arrow indicating that you can rotate the shape.
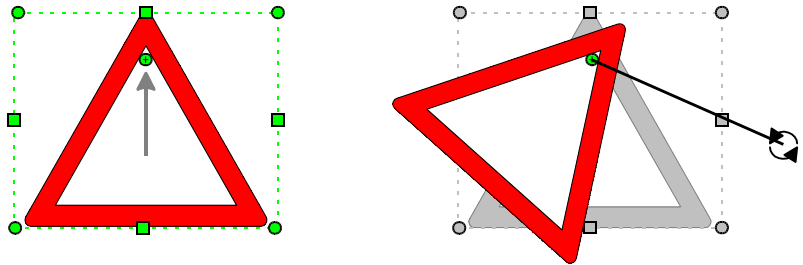
You can rotate a shape around any point by moving the shape's pin to that point.

Duplicating shapes

You can duplicate shapes within the same drawing, or copy shapes from one Visio drawing to another or to a document in another Windows application. You can also drag shapes from one drawing to another or from Visio to another Windows application that is compatible with OLE 2.

You can place shapes exactly where you want them in relation to one another as you duplicate them. For example, you can easily design an auditorium with dozens of rows of seats or a steel structure with regularly placed rivets.

Methods for duplicating shapes

To	Do this
Add several copies of a master to a drawing	Select the stamp tool from the Standard toolbar, then click a master on a stencil to select it. In the drawing window, click the pointer where you want the center of the shape to appear. Continue clicking where you want additional copies of the shape.
Duplicate a shape within the same drawing	Select the shape you want to duplicate, then choose Edit > Duplicate (Ctrl+D). The copy appears on the page slightly offset from the original.
Duplicate a shape at a specific location	Select the shape. Hold down the Ctrl key and drag to where you want the copy.
Repeatedly duplicate a shape and the offset between copies	Select the shape. Hold down the Ctrl key and drag to where you want the copy. Release the mouse button. Press F4 for each copy you want.
Drag and drop shapes from a Visio drawing into another application that supports OLE 2	Display the drawing page that contains the shape you want to copy. Open the document into which you want to copy the shape. Hold down the Ctrl key and drag the shape from Visio into the other document.
Copy and paste shapes from a Visio drawing into another application that doesn't support OLE 2	Select the shape you want to copy. Choose Edit > Copy. In the document in which you want to copy the shape, choose Edit > Paste.

Related topics

Finding shapes on stencils

When you want to find a shape, but aren't sure which stencil it's on, you can quickly search with Shape Explorer instead of opening multiple stencils. Shape Explorer provides an easy way to search for and catalog Visio shapes, stencils, and templates that are provided with Visio products, that are on the World Wide Web, or that are in databases you create.

For example, if you know a 3-D Box shape exists, but don't know where to find it, use Shape Explorer to determine which stencil contains the shape, then open the stencil or use Shape Explorer to add the shape to your drawing.

You search with Shape Explorer by typing the keywords you want to use in the Search For box on the Search tab. A keyword can be a shape or stencil name, or a word or phrase that describes the shape you're looking for, or the type of drawing you want to create.

To open the Shape Explorer:

1. Choose File > Stencils > Shape Explorer.
2. On the Search tab, in the Search For box, type a name, word, or phrase that describes what you want to find.
3. Click Find Now.

   The status bar at the bottom of the Shape Explorer window indicates the progress of the search.

TIP To learn more about how the Shape Explorer works, click Help in the Shape Explorer dialog box.

Formatting shapes

About formatting shapes

You can format shapes in your drawing by changing any one or all of their attributes, such as line weight and pattern, fill color and pattern, or text. For example, you might use color to make a drawing for a slide presentation more effective, or use line patterns to represent a specific type of connection between shapes.

The type of formatting you apply to a shape depends on whether the shape is open or closed. For example, you can add fills to closed shapes, such as circles or rectangles, but not to open ones. You can add line ends to open shapes, such as arcs or zigzag lines, but not to closed ones.

On open shapes, such as arcs, you can change

- Line ends (such as arrowheads).
- Line caps (round, square).
- Line pattern (solid, dashed), line weight, and line color.
- Shadow pattern and shadow color.
- Corners.

On closed shapes, such as rectangles, you can change

- Line pattern (solid, dashed), line weight, and line color.
- Fill color and pattern.
- Shadow pattern and shadow color.
- Corners.

The quickest way to change a shape's appearance is to

- Use Shape toolbar buttons to apply local formatting.
- Use the Text, Line, or Fill style lists to apply a style.

For greater precision, you can use the commands on the Format menu.

Related topics

Formatting shapes

You can choose from among the following formatting methods according to the type of formatting you want to do.

Toolbar buttons

By using the Shape toolbar buttons to apply local formatting, you can quickly change

- Line ends (such as arrowheads).
- Line patterns, weight, and color.
- Fill color and patterns.
- Shadow color.
- Corners on shapes.
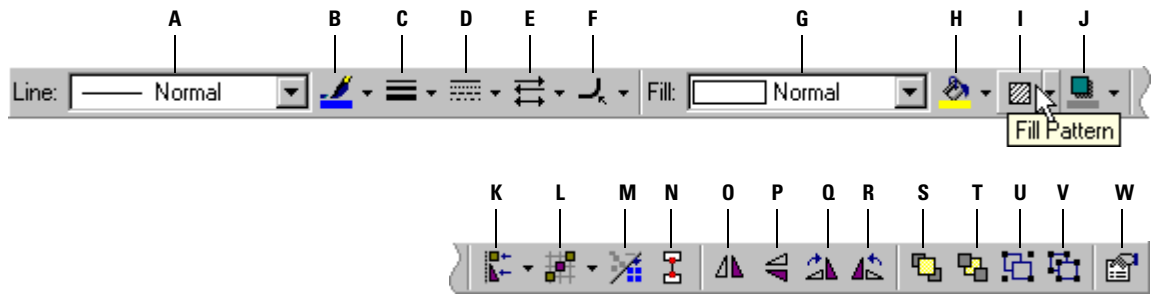
The Shape toolbar. Pause the pointer over a tool or button to see a tip.

A	Line style list	**M**	Lay out shapes
B	Line color palette	**N**	Connect shapes
C	Line weight list	**O**	Flip horizontal
D	Line pattern list	**P**	Flip vertical
E	Line ends list	**Q**	Rotate right
F	Corner roundings list	**R**	Rotate left
G	Fill style list	**S**	Bring to front
H	Fill color palette	**T**	Send to back
I	Fill pattern list	**U**	Group
J	Shadow color palette	**V**	Ungroup
K	Align shapes	**W**	Custom properties
L	Distribute shapes		

NOTE Buttons S–V only appear at resolutions higher than 600x800.
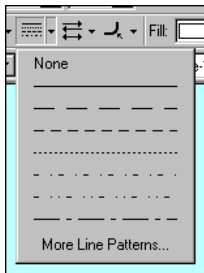
Toolbar palettes

Some of the buttons on the Shape toolbar display palettes from which you can choose an attribute to apply to your shape. After you choose the option you want, the palette closes.

TIP If the option you want isn't available as a palette, you can use a command on the Format menu.

Format menu commands

Although formatting with toolbar buttons is faster, you may sometimes want to use the formatting commands on the Format menu. Format menu commands have options that are not on the toolbar. For example, you can only apply a pattern to a shadow using the Shadow or Fill commands on the Format menu.

Line pattern palette

Style lists

When you format shapes using the Text, Line, or Fill style lists, you're actually applying a style. Styles can contain line, fill, and text formatting attributes. It's best to use a style if you want to apply many formatting attributes to many different shapes. When you start a drawing with a Visio template, the template includes style definitions and the appropriate styles appear in the style lists on the toolbars.

To display the Shape toolbar:

• Choose View > Toolbars > Shape. A checkmark next to a toolbar name indicates that the toolbar is currently displayed.

To format shapes:

• Do one of the following:

  Select the shape or shapes you want to format, then choose the appropriate button or style list from the Shape toolbar.

  Select the shape or shapes, then choose the appropriate command from the Format menu.

Related topics

Formatting multiple shapes

You can format several shapes at once by doing one of the following:

• Selecting multiple shapes at the same time.
• Selecting shapes in a group.

Selecting multiple shapes

When you select multiple shapes and then apply a command, the result depends on the primary shape, the order in which you select, and the stacking order of the shapes.

When you are working with multiple shapes, the primary shape determines

• How all the shapes align when you use the Align Shapes command.
• How the selected shapes are affected when you edit or position them.
• The attributes that appear in any dialog boxes or styles lists you open.
• The order in which shapes connect when you use the Connect Shapes command.

The shape that is primary is determined by one of two things: the selection order or the stacking order.
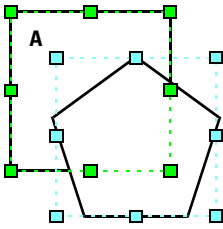
When you select multiple shapes by shift-clicking, the primary shape (**A**) is the first shape you select. The primary shape is indicated by green handles.
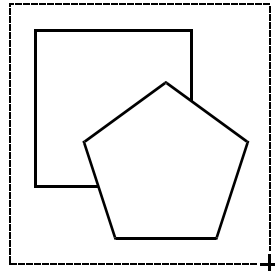
When you select shapes by dragging a selection net around them, the primary shape (**A**) is the one you dropped most recently on the page. The most recently dropped shape is at the front of the stacking order.
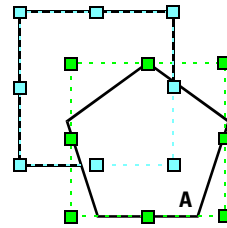
How a command affects multiple shapes in a selection is also determined by the stacking order of the shapes on the page. The first shape you draw or drop on the page is at the back of the stack; the most recently created shape is at the front. Stacking order determines

- Which shape is positioned in front of another if they overlap.
- How multiple shapes are affected by commands. For example, when you type in a group, the text appears on the frontmost shape in the stacking order.
- The selection order when you select multiple shapes by dragging a selection net around them. The shape at the front of the stacking order becomes the primary shape, displaying green handles. (When you select multiple shapes by Shift+clicking, the stacking order doesn't affect the selection order. The first shape you click becomes the primary shape.)

NOTE Shapes on a background always appear behind shapes on a foreground. Layers, however, have no effect on stacking order.

Methods for selecting multiple shapes

To	Do this
Select multiple shapes by clicking	Select the first shape, hold down the Shift key, then click to select other shapes one at a time. The primary shape has green selection handles; all other shapes have blue selection handles.
Select multiple shapes by dragging	Using the pointer tool (⬀) on the Standard toolbar, drag a selection net around all of the shapes you want to select. The shapes appear selected as described above.
Select all shapes on the page	Choose Edit > Select All. If there are more than 25 shapes, they appear with a magenta outline to show that they are selected. Otherwise, shapes appear selected as described above.
Select all of a particular kind of object	Choose Edit > Select Special, then check the type of object that you want to select, such as shapes, groups, or guides. The shapes appear selected as described above.
Cancel the selection of one shape when several are selected	Shift+click the shape.

When you group shapes using the Shape > Grouping > Group command, you can apply formatting to the group or to individual shapes in the group.
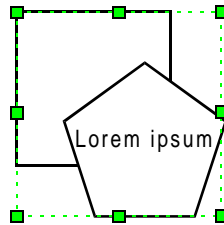
When you select a group and type text,
the text appears on the frontmost shape
 in the stacking order.

Methods for selecting shapes in groups

To	Do this
Format all the shapes in a group	Select the group, then change the style or attribute.
Format a shape within a group	Select the group, then choose Edit > Open Group to open the group in the group window. Select the shape and format it as you would any shape, then click the group window's close box.
Format several shapes at once	Select all the shapes, then change the style or attribute.

Changing the stacking order of shapes

You can change the stacking order of shapes. For example, you can bring a specific shape to the front to act as the primary shape when you drag a selection net around multiple shapes.

Methods for changing a shape's position in the stacking order

To	Do this
Bring a shape forward one level in the stacking order	Select the shape, then choose Shape > Bring Forward.
Bring a shape to the front of the stacking order	Select the shape, then choose Shape > Bring To Front (or press Ctrl+F).
Send a shape backward one level in the stacking order	Select the shape, then choose Shape > Send Backward.
Send a shape to the back of the stacking order	Select the shape, then choose Shape > Send To Back (or press Ctrl+B).
Change the stacking order of a shape in a group	Select the group, then choose Edit > Open Group. Select a shape, change its position in the stacking order as described above, then close the Group window.

Related topics

Formatting lines

A line can be an open straight line, freeform line, or arc; or the border around a closed shape, such as a rectangle. You can format lines or arcs by adding a pattern or color, changing the line weight, adding or removing line ends, changing the line caps, or rounding the line's corners. You can also add a shadow and format the shape's text.

By applying line ends, you can turn any line or other open shape into an arrow. You can apply an arrowhead or other line end to the begin point, the end point, or both endpoints of a shape. You can also choose options for the size of line ends. You can turn an arrow into a straight line by removing any line ends that are applied to it.

Rounded corners can be applied to any corner where two segments meet on open or closed shapes.
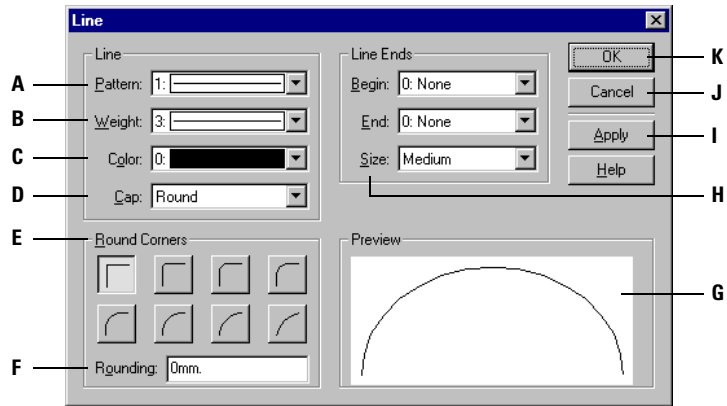
A Choose among none, solid, and dashed lines. The spaces between dashes are transparent.

B Choose among various line widths.

C Choose among colors that are set in the Visio color palette. To add a new color to the color palette, choose Custom. All the colors applied are solid (not dithered) and opaque, including white.

D Choose Round or Square. This applies to open shapes only.

E Choose among various corner formats. This applies only to shapes with corners.

F You can enter a numerical equivalent for the roundness of the corners instead of choosing one of the corner options—the higher the number, the rounder the corners.

G Displays a sample line with the formatting options you have selected.

H For Begin and End, choose among various line ends for the line. For Size, choose the size of the line end. Line ends only apply to open shapes.

I Applies formats without closing the dialog box.

J Closes the dialog box without applying any of the formatting you've selected, even if you clicked Apply previously.

K Applies the formatting options you selected and closes the dialog box.

To change formatting for a line:

1. Select the shape, then choose Format > Line.

2. Choose the options you want.

   You can see how the options you select will look in the Preview box.

3. Click Apply to apply the formatting options you've chosen and view the change before closing the dialog box, or click OK to apply the formatting and close the dialog box.

Related topics

Repeating and copying formatting

If you want to format several shapes the same way, you can select all the shapes and apply the formatting options you want. You can also experiment with one shape until it looks exactly the way you want and then use the Format Painter button to copy that shape's formatting to one or more other shapes in your drawing.

If you want to use the same formatting again and again in many drawings, you can create a style.

Methods for repeating or copying formatting

To	Do this
Format several shapes at once	Select all the shapes you want to format, then click the formatting buttons and choose the style list options you want, or use the appropriate command on the Format menu.
Quickly repeat one formatting change	Make one formatting change to a shape. Select other shapes, then press F4. The last formatting change you made will be used.
Copy one shape's formatting to another shape	Select the shape with the formatting you want to copy. Click the Format Painter button ( ), then click the shape to which you want to copy the formatting.
Copy only text attributes from one shape to another	Double-click the shape to select the text. Click the Format Painter button. Click the shape to which you want to copy the formatting.
Copy one shape's formatting to other shapes sequentially	Select the shape with the formatting you want to copy. Double-click the Format Painter button, then click the shapes to which you want to copy the formatting.
Copy one shape's formatting to several other shapes simultaneously	Select the shape with the formatting you want to copy, then press the Shift key and select the shapes to which you want to copy the formatting. Click the Format Painter button.

Related topics

Adding color and shadows to shapes

You can fill closed shapes and you can give shadows to both closed and open shapes.

Fills and shadows can be a solid or bitmap pattern. Fills can also be a gradient pattern. You choose colors and a pattern from set lists to which you can add custom colors or patterns you create.

Both fills and shadows function in the same way. The only difference is that a shadow is a copy of the shape that is offset from and behind the shape to which it's applied.
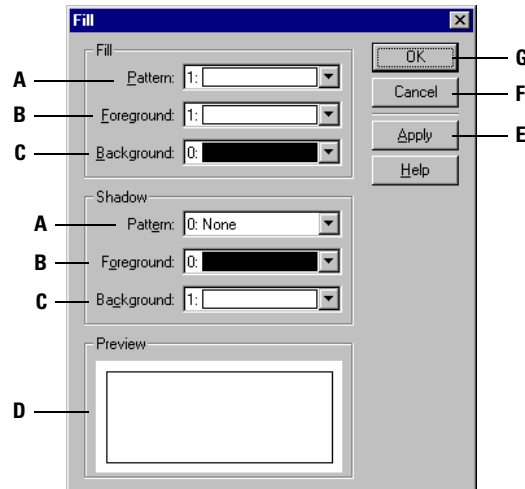
A For both Fill and Shadow, you can specify a blank (transparent), solid, or bitmap pattern. For Fill, you can also specify a gradient pattern. When you specify colors for Foreground and Background, Visio changes the display of the Pattern list according to your color choices. The numbers preceding the patterns and colors in the Pattern, Foreground, and Background lists act as labels.

B For both Fill and Shadow, you can specify a foreground color. If you choose the solid pattern, Visio uses the foreground color for the fill or shadow. Each bitmap and gradient pattern uses both the foreground and background colors. The foreground color is applied to the dots and lines making up the pattern. Some colors in the Foreground and Background lists are quite dark. For those colors, the left half of the color sample shows how the color will look as a solid (pattern 1). The right side shows how the color will appear in any bitmap or gradient pattern.

C Choose the color you want for the background of a bitmap pattern or for the second color in a gradient pattern.

D Displays a sample fill with the formatting options you have selected.

E Applies formats without closing the dialog box.

F Closes the dialog box without applying any of the formatting you've selected.

G Applies the formatting options you've selected and closes the dialog box.

To apply a fill to a closed shape:

1. Select the shape.

2. Choose Format > Fill.

   NOTE You can also use fill formatting palettes on the Shape toolbar. Pause the pointer over the palettes to see tips that identify them.

3. In the Fill section, choose options from the Pattern, Foreground, and Background lists. (You can also choose the same options in the Shadow section.) You can see how the options you select will look in the Preview box.

   There are 40 patterns included with Visio: 0 is no pattern (transparent); 1 is a solid one-color pattern; 2–24 are bitmap patterns; and 25–40 are gradient patterns (for fills only).

   If you choose a bitmap pattern, Visio uses the foreground color for the pattern and the background color for the background.

4. Click Apply to apply the formatting options you've chosen and view the change before closing the dialog box, or click OK to apply the formatting and close the dialog box.

TIP To hide a shape completely, apply to it a 0 (transparent) fill in the Fill dialog box and a pattern of None in the Line dialog box. You can also create shapes with transparent holes by using the Combine command. To temporarily hide a shape, assign the shape to a layer, then hide the layer in the Layer Properties dialog box.

To apply a shadow to a closed or open shape:

1. Select the shape.

2. Choose Format > Shadow.

3. In the Shadow section, choose options from the Pattern, Foreground, and Background lists.

4. Click OK.

TIP To delete a shadow, choose None from the Pattern list for Shadow.

Changing the shadow offset for shapes

Although each shape can have a shadow of a different color and pattern, all shadows on the same page are offset the same amount because shadows are a page property. You can change the size and angle of the shadow offset for all the shapes on a page.

To change the shadow offset for a shape:

1. Choose File > Page Setup, then click the Page Properties tab in the Page Setup dialog box.

2. In the Shape Shadow Offset section, type values for the shadow offset in the Right and Down boxes.

   To move shadows to the left or top of shapes, use negative values.

3. Click OK.

Related topics

Applying custom line and fill patterns

Visio includes a number of stencils that contain custom line and fill patterns and custom line ends. When you open these stencils, the patterns they contain appear as a choice in the Line and Fill dialog boxes. For example, you can open a custom hatch pattern stencil and then apply those hatch patterns as fills from the Fill dialog box. The custom patterns don't appear as masters on the stencil unless you open the original stencil, which gives you read/write access. This is because patterns are not true shapes, but attributes that you apply to shapes.

The way a custom pattern is created affects the way it behaves when you apply it to a shape. For example, some line patterns are set to scale with the line weight, so when a line is very fine, the pattern may be scaled so small that it's difficult to see. Also, some patterns may be set to take on the color of the shape they're applied to, while others are set to override the shape's colors with their own.

To apply a custom pattern:

1. Open the stencil that contains the custom pattern you want to apply.

2. Select the shape to which you want to apply the custom pattern.

3. Choose Format > Line to apply a line or line-end pattern, or Format > Fill to apply a fill pattern.

4. To apply a line-end pattern, choose the custom pattern's name from the Begin or End list in the Line dialog box. To add a line or fill pattern, choose the custom pattern's name from the Pattern list.

5. Click OK.

   The shape displays the pattern.

NOTE If you apply a line pattern or line-end pattern and it doesn't look the way you expected it to (for example, you can't see it), try increasing the line weight.

Related topics

Creating custom line and fill patterns

If you want to use a fill pattern, line pattern, or line-end not available in Visio, you can create your own. Once you've developed a master fill or line pattern, you can apply the pattern to other shapes. When you create a custom line or fill pattern, you create it initially as a master pattern, which then appears as a choice in the Fill or Line dialog box and can be applied to other shapes in the drawing.

You can create a master pattern from a shape you create in Visio, or a shape that already exists, and set its properties, which affect how the pattern behaves. For example, you can choose how the pattern will appear when it is applied to a shape, how it responds when the shape is resized, or how it responds when the drawing page scale changes.

For line patterns, you can set the following options.

Line pattern settings

To	Use
Bend the pattern to the line, so that the pattern is tiled and distorted along the path of the line. The original line is no longer visible.	
Tile multiple images along the line without distorting them	
Stretch a single image along the line	
Tile multiple images along the line without distorting them, while still retaining the line's original formatting	

You can use a shape like a triangle to create a line pattern. The line pattern's properties affect how Visio applies the shape to a line.

You can bend the pattern (**A**), tile it (**B**), stretch it the length of the line (**C**), or tile it while keeping the line's original formatting (**D**).

For line ends, you can set the following options.

Line-end settings

To	Use
Orient the line end to the direction of the line	
Orient the line end so that it is always upright	

You can use a shape like an X to create a line end. The line end's properties affect how Visio applies the shape to the end of a line.
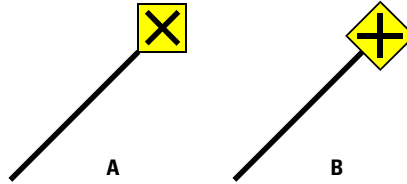
You can orient the line end to the direction of the line (**A**) or keep the line end upright, regardless of the line's angle (**B**).

For fill patterns, you can set the following options.

Fill pattern settings

To	Use
Create multiple copies (tile) of the image to fill a shape	
Use a single, centered, image	
Stretch a single image to fill the shape	

You can use a shape like a star to create a fill pattern. The fill pattern's properties affect how Visio applies the shape to a line.
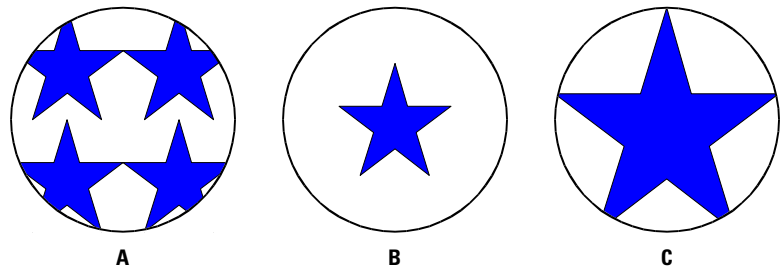
You can tile the pattern (**A**), use a single, centered image of it (**B**), or stretch it to fill the space (**C**).

For all types of patterns, you can choose to scale the pattern as the drawing page scale changes, or you can keep the pattern at a constant size.

Creating a pattern is a simple process, but keep in mind that developing a pattern that works a particular way requires a good understanding of how shapes work and may also require some trial and error testing.

A Type the name you want the master icon to display and select the alignment for the master icon text.

B Select the size you want the master icon to be and select whether you want to update it manually or automatically if you change the master.

C Select the kind of master you want to create.

D For Line Pattern, Line End, or Fill Pattern, select the behavior you want. For example, for Line End, you can select whether you want the line end to be perpendicular to the line or to the page.

E For Line Pattern, Line End, or Fill Pattern, check if you want the master to scale with the shape it's applied to.
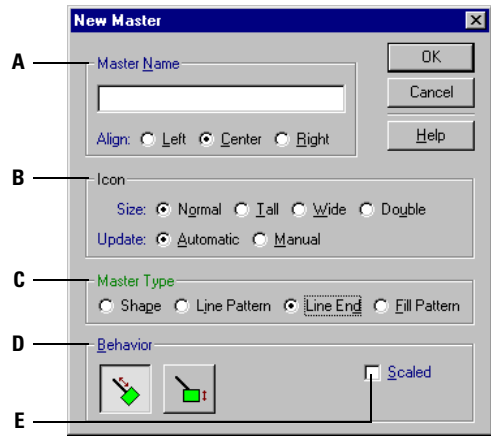
To create a new master pattern and set its properties:

1. Open as an original file the stencil to which you want to add the new master pattern, or choose File > Stencils > Blank Stencil to open a new stencil.

2. On the drawing page, create the shape or shapes you want to designate as a pattern. You can create shapes from scratch or modify existing shapes. To create a pattern from multiple shapes, select them all, then choose Shape > Grouping > Group.

3. Drag the shape or group from the drawing page and drop it into the stencil window to create a new master.

4. Right-click the new master, then choose Properties from the shortcut menu.

5. Type a name for the pattern in the Master Name section, select the alignment, size, and update options for the master icon.

6. Select a type of master and behaviors you want for the shape, then click OK.

7. Save the stencil.

TIP You can also create a new master by right-clicking the green stencil background and choosing New Master from the shortcut menu. In the New Master dialog box, choose the options you want, then click OK. Right-click the new master and choose Edit Master to open a drawing window where you can draw the shape or shapes you want to make up the pattern.

Related topics

Working with connections

About creating and revising connected drawings

Many drawings include lines, or one-dimensional (1-D) shapes, that indicate connections between two-dimensional (2-D) shapes. These drawings are called "connected drawings," like flowcharts, which use 1-D shapes to connect the stages in a process.

In Visio, these 1-D shapes are called "connectors," and they include special behavior to make it easier and faster for you to create, and later change, connected drawings. You can use this behavior—called "glue,"—to ensure that shapes that need to stay connected do so when you revise the drawing.

You can revise a connected drawing by using one of the following methods:

- Moving 2-D shapes.

  When you reposition 2-D shapes, connections remain intact, so you don't need to redraw them.
- Manually editing the paths of routable connectors by moving, adding, or deleting endpoints, midpoints, and vertices.

  You can change the path a routable connector takes around shapes that lie between the shapes it connects.

Related topics

Using glue to maintain shape connections

Glue is what keeps shapes connected when you move them. When you want to reposition shapes in your drawing, glue saves you the time it would take to drag each shape one at a time and re-attach connectors.

While you're working with glue, it helps to keep the following in mind:

- You can use dynamic or static glue to create connections between shapes or specific points on them.
- You can change glue settings to determine the types of points that connectors and shapes can glue to.
- You can add new connection points to shapes to make your connections more precise.

Gluing connectors to shapes or to specific points on them

You can glue connectors to shapes with

- Dynamic glue, in which the connector is glued to the shapes and changes the points at which it's connected when you reposition the shapes. Dynamic glue keeps the shapes connected at the closest available points.

  For example, dynamic glue is appropriate for a flowchart, which represents the flow of a process. Each subsequent step must be connected to the previous step, but the specific point on the shape representing the previous step doesn't matter. When you move a step, you want the connector to shift to the point on the previous step closest to the subsequent step's new location.
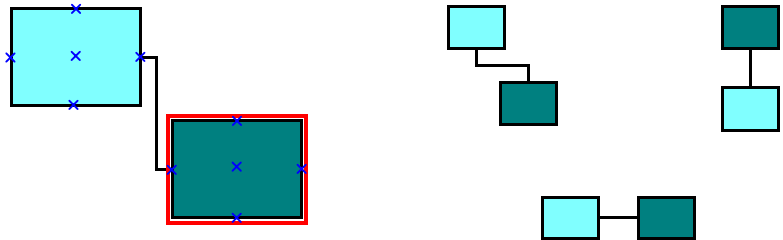
  Dynamic glue When you glue a connector to an entire shape, a box appears around the shape before you drop the connector endpoint onto it. If you move one of the 2-D shapes, the connector adjusts to glue to the point that's closest to the other shape.

- Static glue, in which the 1-D connector is glued to one specific point on each 2-D shape, and stays glued to those specific points when you reposition the shapes.

For example, static glue is appropriate for an organization chart, which represents a reporting hierarchy. Position shapes appear under and are connected to the bottom center of Manager shapes. When you move a Position shape, you don't want the connector to shift to any other point on the Manager shape.
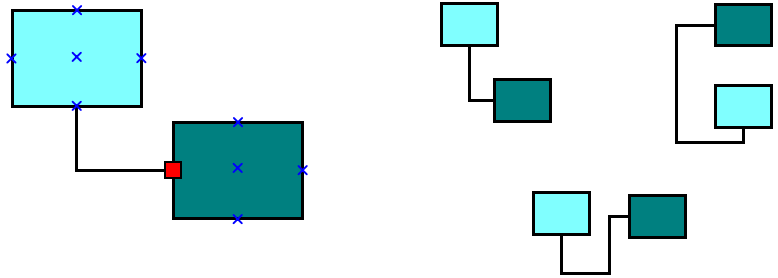
Static glue When you glue a connector to a specific point on a shape, a box appears around that point before you drop the connector endpoint on the shape. If you move one of the 2-D shapes, the connector remains glued at the specific points.

Whether shapes use static or dynamic glue depends upon the method you use to connect them and the type of connector you use. With connectors that glue both statically and dynamically, you can switch between static and dynamic glue. Not all connectors can glue dynamically. For example, control-handle connectors that you drag from shapes can only glue to a specific point.

TIP You can recognize a properly-glued connector endpoint or control handle by the color of its selection handle. When you select the connector, its glued endpoints or control handles are red. If an endpoint is light red and slightly larger than a normal selection handle, it's glued using dynamic glue. If it's darker red and is the same size as other selection handles, it's glued using static glue.

To switch from static to dynamic glue:

· Hold down the Ctrl key, then drag a connector endpoint away from the shape and then back to one of the shape's connection points.

   When you drag the endpoint back to the shape, a box appears around the entire shape.

To switch from dynamic to static glue:

· Drag a connector endpoint away from the shape and then back to one of the shape's connection points.

   When you drag the endpoint back to the shape, a box appears only around the connector endpoint.

Setting glue options

You can control what types of objects shapes glue to and what their glue strength is. Glue strength is the amount of pull (measured in pixels) that a guide, selection handle, vertex, or connection point exerts. If you don't want endpoints to glue to guides or any points on shapes, you can turn glue off completely.

The glue settings you choose in the Snap & Glue dialog box apply to all shapes on the current drawing page. If you have more than one page in your drawing, you can set different glue options for each page.

TIP Options you set in the Snap & Glue dialog box don't affect connections you make with the Connect Shapes command or with the connector tool.
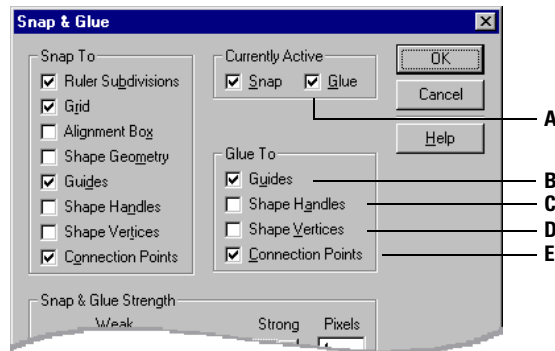
A Check to turn glue on or off.

B Check to glue endpoints to guides. This option is checked by default.

C Check to glue endpoints to selection handles on shapes, groups, objects from other programs, or to other 1-D shape endpoints.

D Check to glue endpoints to shape vertices.

E Check to glue endpoints to connection points (blue Xs) on shapes. This option is checked by default.

To set glue options:

1. Choose Tools > Snap & Glue.

2. Under Currently Active, make sure the Glue option is checked.

3. Under Glue To, check the options you want, then click OK.

Adding connection points to shapes

You can specify the points on a 2-D shape that connectors can glue to. If you need to show a connector attached to a particular location on a shape, you can add a connection point at that location. Connection points can lie on the perimeter, inside, or even outside the shape. They appear on the screen but don't print, and you can prevent connection points from appearing onscreen.
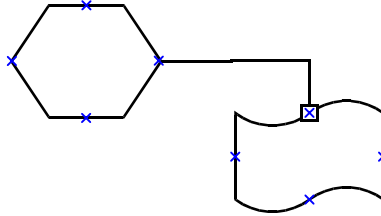
By default, 1-D endpoints and control handles glue to connection points (✗) on shapes. You can also choose to have endpoints glue to selection handles and vertices, and you can add new connection points.

To add a connection point to a shape:

1. Select the shape to which you want to add a connection point.

2. From the toolbar, choose the connection point tool (✗).

3. Hold down the Ctrl key and click on, inside, or outside the selected shape's boundaries.

TIP To delete a connection point, click the point with the connection point tool (it turns magenta), and then press the Delete key.

To prevent connection points from displaying onscreen:

• From the View menu, choose Connection Points.

   When the command is unchecked, connection points do not display onscreen.

Related topics

Adding connectors to your drawings

Visio provides four main ways to add connectors to your drawings:

Drawing connectors with the connector tool You can choose the connector tool from the Standard toolbar and then drag 2-D shapes from stencils to your drawing page. The shapes are connected when you drop them on the page. You can also draw connectors between shapes that are already on the page.

Pulling connectors from shapes Some 2-D shapes include control handles that you can click and drag to pull a connector from the shape.

Using the Connect Shapes command You can connect a series of shapes at once by choosing Connect Shapes from the Tools menu to add connectors between the shapes.

Dragging and dropping connector shapes Many Visio stencils include connectors that you can drag to your drawing page and drop in place.

Which method you use depends on the type of drawing you're creating, whether you expect to make extensive revisions later, and how much control you want over the connections you have.

Working with connectors

Connectors are 1-D shapes with endpoints. You glue these endpoints to 2-D shapes to create connections that are maintained when you reposition the 2-D shapes.

Certain connectors, such as the Dynamic Connector and other routable connectors, also display midpoints and vertices when you select them. These points give you additional control over the connector's path from one shape to another. Vertices look the way they do on other shapes: green diamond-shaped handles. Midpoints look like control handles, that is, green squares with darker shading. You can set up a drawing so that routable connectors detect 2-D "placeable" shapes and draw paths around them rather than crossing through them.
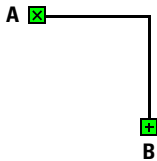
Connectors have begin points (**A**) and end points (**B**) that are indicated by an x and a + respectively.
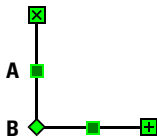
Routable connectors display midpoints (**A**) and vertices (**B**) for additional editing capabilities.

To connect 2-D shapes with a Dynamic Connector using dynamic glue:

1. Display the drawing that contains the 2-D shapes you want to connect, and make sure a connector master is not selected on an open stencil (selected master icons are highlighted in blue).

2. Choose the connector tool ( ) from the Standard toolbar.

3. Position the connector tool over the center of the first shape, until a box appears around the entire shape, then hold down the mouse button and drag to draw a connector.

4. While holding the mouse button, position the connector tool over the center of the other shape, until a box appears around it, then release the mouse button.

   NOTE If a box appears around a particular point on the shape, you'll create a connector that's glued using static glue.

To connect shapes with Visio connectors:

1. Drag a connector from the stencil, and position one of its endpoints on a 2-D shape's connection point.

   The endpoint turns red to indicate that the shapes are glued.

   TIP In the Snap & Glue dialog box, you can also specify to glue endpoints to 2-D shapes' selection handles or vertices.

2. Drag the other endpoint to another 2-D shape.

Connecting shapes as you drop them on the page

You can connect shapes as you drop them on the page by using the connector tool as you drag and drop.

As long as the connector tool is selected, if a connector master is not selected on the stencil, Visio adds a Dynamic Connector between the selected shape and the next shape you drop onto the drawing page. To create new branches in a chart or diagram, select the shape from which you want to start the new branch, then drag a new shape to the drawing page.

To connect shapes as you drag and drop them:

1. Make sure a connector is not selected on an open stencil. To cancel a master selection, click the green stencil background with the pointer tool.

2. Choose the connector tool ( ) from the toolbar.

3. Drag and drop a 2-D shape from the stencil onto the drawing page.

4. With the first shape still selected, drag and drop another 2-D shape onto the drawing page.

   Visio automatically connects the shapes with an instance of the Dynamic Connector.

Dragging connectors from control handles on shapes

Some 2-D shapes, such as organization chart position shapes and the network Ethernet and ring shapes, function as specialized connectors. These shapes have built-in connectors: control handles that you can drag and glue to other 2-D shapes.
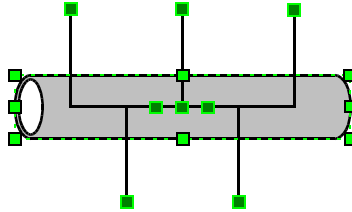
Some shapes have control handles (■) that you can drag to glue to other shapes.

You can often tell which shapes contain control-handle connectors by looking at master icons in the stencil. Connectors appear as yellow lines extending from the main shape.

To drag a connector from a control handle on a shape:

1. Drag and drop organization chart shapes or a ring or Ethernet shape from a network diagramming stencil.

2. Select a shape and position the pointer over the shape's control handle (■).

3. Drag the control handle to a connection point on the other 2-D shape.

Connecting a series of shapes at once

You can use the Connect Shapes command on the Tools menu to add connectors between multiple shapes at once in a drawing.

To connect a series of shapes at once:

1. Select the 2-D shapes in the order you want to connect them.

   Click the first shape, then press the Shift key and click the other shapes.

2. If you want to use a particular connector, select its master icon in the stencil.

   If you don't select a connector, Visio uses the Dynamic Connector. If a connector is selected and you want to cancel its selection, click the green stencil background with the pointer tool.

3. Choose Tools > Connect Shapes or click the Connect Shapes button (⯗).

   Visio creates an instance of the connector and, if the connector you select can use dynamic glue, connects the shapes with dynamic glue.

Related topics

Displaying line jumps on crossing connectors

In some drawings, such as flowcharts or network diagrams, connectors may cross over one another. In a complex drawing, it can be hard to follow the path of a connector if it crosses over another of the same type.

To make connections easier to follow when you or others analyze your drawing, you can have routable connectors display "line jumps," when they cross over other connectors.
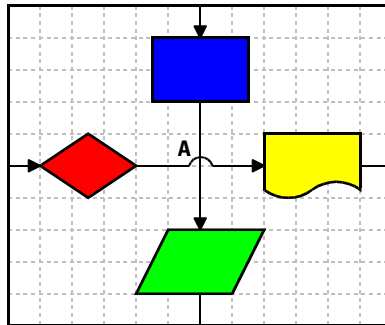
Line jumps (**A**) clarify the shapes that a connector connects to.

To enable line jumps and specify which connectors show them:

1. Display the drawing in which you want to display connector line jumps.

2. Choose File > Page Setup, then click the Page Properties tab.

3. Under Add Line Jumps To, select the type of connectors that, when two lines cross, display a line jump. Choose one of the following:

   None to turn off all line jumps.

   Horizontal Lines to add a line jump to the connector that runs horizontally.

   Vertical Lines to add a line jump to the connector that runs vertically.

   Last Routed Line to add a line jump to the connector you added or modified most recently (default).

   NOTE Changing this setting changes line jumps on connectors that already exist in the drawing, as well as those you add after changing the setting.

4. Click OK.

Related topics

Working with routable connectors and placeable shapes
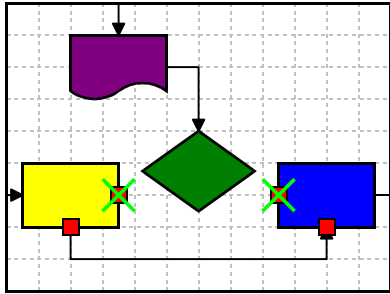
A routable connector can detect placeable shapes and change its path to avoid crossing through them.
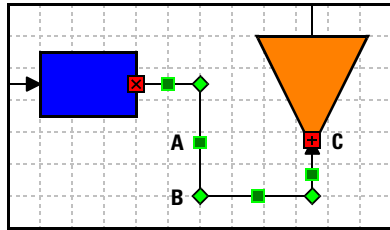
To change a routable connector's path manually, you can edit its midpoints (**A**), vertices (**B**), and endpoints (**C**). Endpoints and vertices look the same as they do on other 1-D shapes. Midpoints look like control handles—green squares with darker shading—but function differently on routable connectors.

In some templates, such as those for creating flowcharts, organization charts, and network diagramming, the connectors are set up to draw a path around other shapes rather than crossing over them. These connectors are called "routable," and they work with 2-D shapes that are set to work with them, called "placeable shapes."

When a routable connector encounters a placeable shape between the two shapes it connects, it draws a path around the shape rather than crossing through it. Routable connectors can route around only shapes set as placeable.

A routable connector changes its path from one shape to another when you drop a placeable shape on top of a connector that's already in the drawing.

After you glue a routable connector to a shape, you can manually edit the connector's midpoints and vertices to change the path it takes from one shape to the other.

If you use the connector tool or Connect Shapes command, you can create routable connectors by first making sure a connector is not selected on the stencil. When you do not select a connector, Visio connects shapes with a Dynamic Connector, which is always routable.

To set a 2-D shape as placeable:

1. Select the shape, then choose Format > Behavior.

2. Under Layout Behavior, choose one of the following:

    Layout And Route Around to set the shape as placeable.

    Do Not Layout And Route Around to set the shape as non-placeable. (It does not become placeable even when you glue a routable connector to it.)

    Let Visio Decide to have Visio determine when to make the shape placeable, according to the type of connector you glue to the shape. If you glue a Dynamic Connector to the shape, Visio makes it placeable.

3. Click OK.

Working with text

About working with text

Text can clarify the meaning of your Visio drawings, list shape attributes, or document changes you or other Visio users make to a drawing. For example, you can

- Describe the process a shape represents in a process flow diagram.
- Add title blocks and bulleted lists to your drawings.
- Add page numbers or footers to every page of a multiple-page drawing.
- Annotate a technical drawing.

Related topics

Adding text to shapes and drawings

You can add text to any Visio shape, including connectors, by selecting the shape and typing. You can also create text-only shapes to add titles and lists to a drawing. In a text-only shape, the shape has no line or fill, so only text you type in the shape is visible. Text-only shapes also enable you to add text to objects from other programs—position the text-only shape where you want to type text for the imported object.

The part of the shape in which you type text is called the text block. A text block can differ from its shape in size, angle, and relative location, so you can place text where you want it in relation to a shape. Each shape has only one text block.

When you select a shape with a non-text tool, such as the pointer tool, Visio selects all of the existing text so that when you type, the existing text is replaced with the new text. To select only a part of the existing text or to place an insertion point in the text, use the text tool ($\mathbf{A}$). The text tool selects the shape and opens the shape's text block. After you highlight text within a text block, you can delete, cut, copy, or format the selection, or you can type or paste to replace it. To add text without replacing any of the existing text, click with the text tool to place an insertion point where you want to type new text.

To rotate, resize, or move an entire text block, select its shape with the text block tool (⊕).

Methods for selecting text

To	Use this tool	Take these steps
Select a text block	⊕	Click the shape with the text block you want to select. If the handles are gray, the shape is grouped. Use the Open Group command to view the shape in the group window.
Select all text in a block or, if there's no text, to display the insertion point	▶	Double-click the shape. Or select the shape, then press F2.
Select part of the text in a text block	A	Click the shape, then drag the insertion point. Select all the text, then drag the insertion point.
Select a word or paragraph	A	Click the shape, then double-click a word or triple-click a paragraph.
Place the insertion point in text	A	Click the shape.

NOTE Visio zooms in on the drawing when you select text so that you can see what you are typing. To return to the original magnification, press the Esc key on your keyboard or click anywhere outside the shape or text block after you type the text.

To type text in a shape:
1. Select the shape, then type the text.
2. When you finish typing, press the Esc key or click outside the text block.

To create a text-only shape:

1. Choose the text tool (**A**) from the Standard toolbar.

2. Click where you want to start typing, or click and then drag until the text block is the size you want, then release the mouse button.

3. Type the text.

   When you start typing, Visio creates a text-only shape and zooms in on its text block.

4. When you finish typing, press the Esc key or choose the pointer tool from the Standard toolbar.

To turn off automatic zooming when editing text:

1. Choose View > Zoom > Custom.

2. Uncheck Zoom When Editing Text.

Related topics

Cutting, copying, and pasting text

You cut, copy, or paste text in Visio in the same way you do in many word-processing programs. You can also reverse text changes by using the Undo command.

NOTE When you paste text from another application, the formatting information is lost.

Methods for cutting, copying, and pasting text

To	Use this tool	Take these steps
Cut or copy selected text to the clipboard	**A**	Select the text, then press Ctrl+X to cut or Ctrl+C to copy.
Copy all text to the clipboard	**A**	Click the shape, then press Ctrl+C.
Paste text from the clipboard	**A**	Click to place the insertion point, then press Ctrl+V.
Repeat a text action, such as pasting text		Press F4.

Related topics

Editing existing text

After you've added text to a shape, you can edit it by placing an insertion point into the text and typing. You can also edit existing text in shapes that come with Visio.

To edit existing text:

1. Double-click the shape to open the text block, or click the text with the text tool on the Standard toolbar ($\mathbf{A}$).

2. Click where you want to place the insertion point.

   You can move the insertion point by clicking anywhere in the text block or by using the arrow keys on the keyboard.

3. Type the new text, then press the Esc key.

NOTE Double-clicking a grouped shape opens the group window rather than opening the text block. In the group window, you can double-click shapes within the group to edit their text blocks.

To delete text from a shape:

1. Choose the text tool from the Standard toolbar.

2. Click the shape that contains the text you want to delete.

   When you click the shape, the text block opens and the insertion point appears at the end of the text.

3. Select the text to delete, or press Ctrl+A to select all text in the text block.

4. Press the Delete key.

5. Choose the pointer tool from the Standard toolbar to close the text block.

To delete a text-only shape:

• Select the shape with the pointer tool, then press the Delete key.

Related topics

Adding and editing text in groups

In grouped shapes, such as the 3-D bar shapes in the charting stencils, Visio adds any text you type to the frontmost shape in the shape's stacking order. The group itself doesn't have its own text block.

You can change the stacking order of a group by using the Edit > Open Group command, then using the Shape > Bring To Front command to make the shape you want the frontmost shape.

To add or edit text in a shape within a group:

1. Select the group.

   Green selection handles appear on the group.

2. Click the shape you want to work with to subselect it.

   Gray selection handles appear on the shape.

3. Type to add or edit the text just as you would in an ungrouped shape.

Related topics

Setting, changing, and deleting tabs

29.95	29.95	29.95	29.95
4.630	4.630	4.630	4.630
134.29	134.29	134.29	134.29
.250	.250	.250	.250
A	**B**	**C**	**D**

Tab options in Visio include Left alignment (**A**), Center alignment (**B**), Right alignment (**C**), and Decimal alignment (**D**).

You can use tabs to align text in table form or to create bulleted or numbered lists. Tabs can be left-, center-, or right-aligned. You can also use decimal tabs to align columns of numbers. A text block can have up to ten tab stops.

NOTE Tabs can only be applied to an entire paragraph, not to selections within a paragraph.
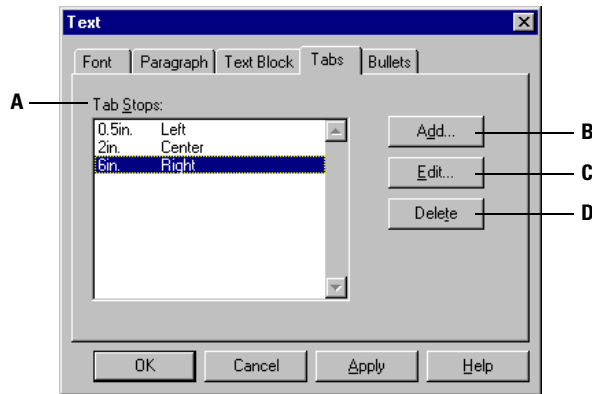
You can set tab positions and alignment for selected text by choosing Format > Text, then clicking the Tabs tab.

A Lists the existing tab stops for the selected text.

B Click to open the Tab Properties dialog box, where you type the position and alignment for a new tab.

C Click to open the Tab Properties dialog box, where you can set the position and alignment of the tab selected in the list.

D Click to delete the tab stop selected in the list.
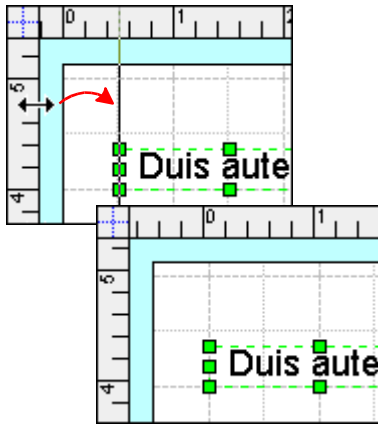
Moving the zero point.

Tab positions are based on the width of the text block, not the width of the shape or the shape's distance from the edges of the page. If you are working at a scale of 1:1, you can make setting tabs easier if you move the horizontal ruler's zero point to the edge of the text block before you choose tab positions.

TIP If you're working at a scale other than 1:1, such as ¼"=1', the rulers measure in drawing units (in this case, feet), while the tabs are measured in page units (in this case, inches). This difference can be confusing when you're trying to use the ruler to determine tab positions. You can use the rulers, it just requires a little math. For example, if your scale is ¼"=1', every foot on the ruler is ¼", so if you want to set a tab where the ruler reads 3', multiply 3 by ¼ and set your tab at .75".

TIP To set a tab that applies to the entire text block, click an insertion point anywhere within the text (without highlighting the text) or select the whole text block with the pointer or text block tool (🄰).

Select specific paragraphs to set tabs for part of a text block.

Select a text block or place an insertion point in the text to set tabs for the whole text block at once.

To move the ruler's zero point to the left edge of a text block:

1. Select the shape with the text tool (**A**) so you can see the edge of the text block.

2. Hold down the Ctrl key and point to the vertical ruler to the left of the drawing window, then drag a vertical line to the left edge of the text block.

   When you release the mouse button, the line disappears and the horizontal ruler's zero point appears at the left edge of the text block.

TIP To return the ruler's zero point to its original position after setting tabs, double-click the ruler intersection in the upper-left corner of the drawing page.

To add tab stops to selected paragraphs:

1. Choose the text tool from the Standard toolbar, then select the shape to open the text block.

2. Select one or more paragraphs that you want to format.

3. Choose Format > Text to open the Text dialog box, then click the Tabs tab.

4. Click the Add button to open the Tab Properties dialog box, then type the position you want for a tab stop in the Position box. Choose an alignment option for the tab, then click OK in the Tab Properties dialog box.

   The tab appears in the Tab Stops list.

5. Click OK in the Text dialog box.

To delete tab stops from selected paragraphs:

1. Select the shape.
2. Select one or more paragraphs that you want to delete tabs from.
3. Choose Format > Text to open the Text dialog box, then click the Tabs tab.
4. In the Tab Stop list, choose the tab stop you want to delete, then click Delete.

   Repeat for other tab stops you want to delete.
5. Click OK.

To change the position of a tab stop:

1. Select the shape.
2. Select the paragraph that includes the tab you want to move.
3. Choose Format > Text to open the Text dialog box, then click the Tabs tab.
4. In the Tab Stop list, choose the tab stop you want to move.
5. Click Edit to open the Tab Properties dialog box, enter a new value in the Position box, then click OK.

   The tab appears with its new value in the Tab Stops list.
6. Click OK.

To set tabs for table text:

1. With the text tool, select an existing text block or shape.
2. Choose Format > Text to open the Text dialog box, then click the Paragraph tab.
3. Set Horizontal Alignment to Left and Indents to zero, then click OK.
4. Move the vertical ruler's zero point to the left edge of the text block. To do this, hold down the Ctrl key and drag from the vertical ruler.
5. Choose Format > Text to open the Text dialog box again, click the Tabs tab, then drag the Text dialog box so that you can see the text block.
6. Click Add in the Text dialog box to open the Tab Properties dialog box, enter the position and set the alignment for the first tab in your table, then click OK.

   Because you moved the zero point, you can set tab stops as the distance from zero.
7. Repeat step 6 for each tab in your table, then click OK in the Text dialog box.

Related topics

Creating numbered and bulleted lists using tabs and indents

You can create numbered and bulleted lists, using tabs and hanging indents. After you've set tabs and indents using the Format > Text command, you can type bullets or numbers before each paragraph.

- Lorem ipsum dolor sit amet, consectetuer adipiscing elit.
- Sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.
- Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper.
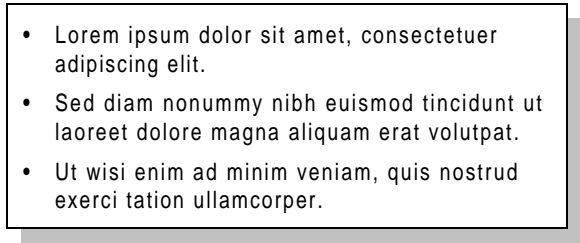
By using tabs in combination with paragraph indent settings, you can create bullet lists with hanging indents.
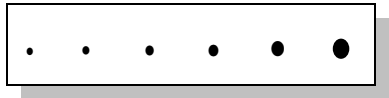
You can select the bullet and use the Font Size list on the toolbar to change its size.

NOTE To create bullet lists quickly and automatically, use the bullets button on the Text toolbar or the Bullets tab in the Text dialog box.

To create a numbered list using tabs and indents:

1. Use the text tool to select an existing text block or shape.
2. Choose Format > Text to open the Text dialog box, then click the Paragraph tab.
3. Set Horizontal Alignment to Left, then for Left enter a value that leaves enough room for a bullet and a blank space, such as 1 pica.
4. For First enter a negative value, such as -1 pica.
5. Click the Tabs tab, then click Add. For Position, enter the same value you used in step 3, then click OK.

   To create a list item, type the number in the style you want, press Tab, then type.

To create a bulleted list using tabs and indents:

1. Use the text tool to select an existing text block or shape.
2. Choose Format > Text to open the Text dialog box, then click the Paragraph tab.
3. Set Horizontal Alignment to Left, then for From Left enter a value that leaves enough room for a bullet and a blank space, such as 1 pica.

4. For First Line enter a negative value, such as -1 pica.

5. Click the Tabs tab, then click Add. For Position, enter the same value you used in step 3, then click OK.

To create a list item, type the bullet (Ctrl+Shift+8) in the style you want, press Tab, then type. You can also add bullets using the bullet tool on the Text toolbar.

Related topics

Creating bulleted lists automatically

To create bulleted lists quickly and automatically, you can use the bullet button on the Text toolbar or choose an option in the Bullets tab in the Text dialog box. When you apply bullet formatting to a piece of text, each paragraph in the text becomes a bulleted item with a hanging indent.

The bullets Visio uses for bulleted lists do not change shape when you apply a different font to the list text. For example, if you apply round bullets to a list and then change the list text to Zapf Dingbats, the bullets remain round. However, if you change the font size of the list text, the bullets increase in size with the text.

TIP To create custom bullets or bullets that are a different size from the list text, create them manually using tabs and indents.

To create a bulleted list using the Bullets tab:

1. Use the text tool to select the list text or place a cursor in a text block where you want to type a bulleted list.

2. Choose Format > Text to open the Text dialog box, then click the Bullets tab.

3. Select a bullet option, then click OK.

To create a bulleted list using the bullets button:

1. Use the text tool to select the list text or place a cursor in a text block where you want to type a bulleted list.

2. Click the bullets button on the Text toolbar.

    The last bullet format that was chosen in the Bullets tab will be applied to the text.

Related topics

Adding annotation layers to drawings

During the life cycle of certain types of technical drawings, an engineer or architect creates the drawing and then may forward the file to a manager, client, or quality assurance person, who marks changes to be made. Using Visio, you can streamline this markup, or redlining, process by creating a separate layer for review comments. Placing the comments on a layer by themselves makes them easy to view, print, and color separately from the rest of the drawing, and makes the incorporation process easy and efficient.

To add and set up a separate layer for review comments:

1. In the drawing you want to add comments to, choose View > Layer Properties.

2. Click New, type Redlining, then click OK.

3. With the Redlining layer selected, click the Active button. A checkmark appears next to Redlining in the Active column.

4. With the Redlining layer selected, click the Color button, then choose a color from the Layer Color list. Click OK to close the dialog box.

TIP If more than one person is reviewing a drawing, create a redlining layer for each reviewer and give each layer a different display color.

A List of layers in the drawing, including a redlining layer. Click a layer to select it.

B Click to make the selected layer active. If you make only the redlining layer active, all changes to the drawing will be added to that layer.

C Click to lock the selected layer against changes before sending the file out for review.

D Click to color all shapes and text added to the selected layer.

E Click to add a new layer to the drawing. You can name the layer—for example, Redlining.

F Choose the color for the selected layer from this list.
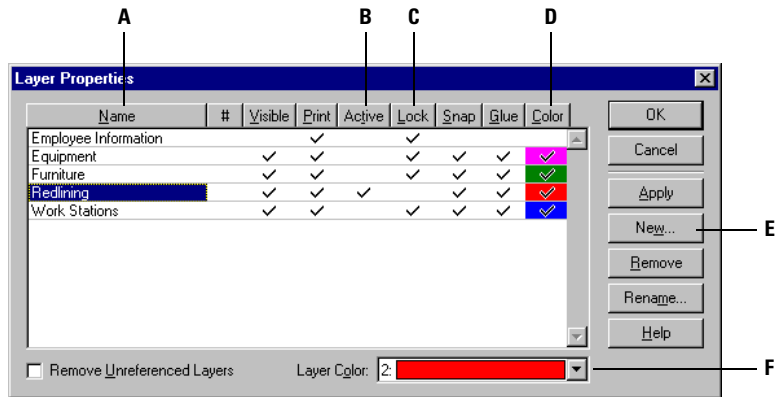
Use the Layer Properties dialog box to set up one or more redlining layers for your reviewers to annotate a file.

Related topics

8

Formatting text

About formatting text

You can format text in your drawing by changing any one or all of the text's attributes, such as color, alignment, font, and size.

To change the appearance of your text:

- Use tools from the Text toolbar to apply local formatting.
- Use the commands on the Format menu to apply local formatting.
- Use the Text style lists to apply a style.

In addition to formatting text, you can format the text block that contains the text. You can change the background color, vertical alignment, margins, and rotation.

Applying text formatting

You can choose from the following formatting methods according to the type of formatting you are doing.

The Text toolbar

By using the tools on the Text toolbar to apply local formatting to your text, you can quickly change size, color, font, style, indents, paragraph spacing, and bullets.

Format menu commands

Using the commands on the Format menu takes a little more time than using the toolbar, but you gain a degree of precision and a few additional options. For example, you can enter the precise font size you want and set text case and position in the Text dialog box.

The Text style list

When you format text using the text style list on the Text toolbar, you're actually applying a style. When you start a drawing with a Visio template, the template includes style definitions and the appropriate styles appear in the style lists on the toolbar. It's best to use a style if you want to apply many formatting attributes to many different shapes. Using styles instead of local formatting can also reduce the file size of your drawing and increase its performance.

To display the Text toolbar:

• Choose View > Toolbars > Text. A checkmark next to a toolbar name indicates that it is currently displayed.
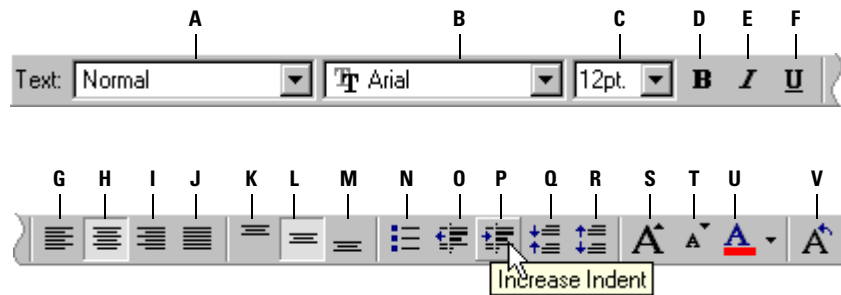
The Text toolbar. Pause the pointer over a tool or button to see a tip.

A	Text style list	**L**	Middle align
B	Font list	**M**	Bottom align
C	Font size list	**N**	Bullets
D	Bold	**O**	Decrease indent
E	Italic	**P**	Increase indent
F	Underline	**Q**	Decrease paragraph spacing
G	Left align	**R**	Increase paragraph spacing
H	Center align	**S**	Increase font size
I	Right align	**T**	Decrease font size
J	Justify	**U**	Text color
K	Top align	**V**	Rotate text 90°
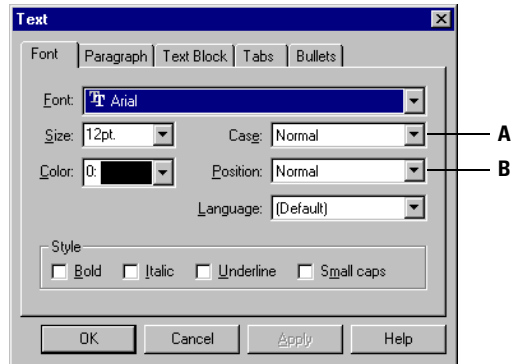
For options that aren't on the Text toolbar, such as text position and case, and for finer control over text, choose Format > Text to open the Text dialog box.

A Choose Normal, All Caps, or Initial Caps.
B Choose Normal, Superscript, or Subscript.

To quickly format individual paragraphs, words, or characters:

• Choose the text tool ($\mathbf{A}$) from the Standard toolbar, select the text you want to format, then choose formatting options from the Text toolbar or Format menu.

To format all the text in a shape's text block:

1. Select the shape with any tool that can select shapes. Or choose the text tool from the Standard toolbar, then click to place an insertion point in the shape.

2. Choose the formatting options you want from the Text toolbar or Format menu.

To format text using the Text dialog box:

1. Double-click the shape to open the text block.

   To format part of the text block, select the text you want to format.

2. Choose Format > Text, then click the Font tab.

3. Choose the formatting options you want.

4. Click Apply to apply the attributes and continue working in the dialog box, or click OK to apply the attributes and close the dialog box.

To format text using keyboard shortcuts:

1. Double-click the shape to open the text block, or click the text with the text tool.

2. To format part of the text block, select the text you want to format.

3. Use the following keyboard shortcuts to format the selected text.

Keyboard shortcuts

For	Type
Bold	Ctrl+Shift+B
Italic	Ctrl+Shift+I
Small caps	Ctrl+Shift+Y
Subscript	Ctrl+Shift+X
Superscript	Ctrl+Shift+Z
Underline	Ctrl+Shift+U

Related topics

Changing the horizontal alignment, indentation, and spacing of paragraphs

The alignment of text in shapes is determined in relation to the text block, not the shape or the drawing page.

You can change the alignment and indentation of any paragraph with respect to its text block. For example, if you want to create a bulleted list or a table, you begin by aligning the text on the left side of the text block. If you want to create a hanging indent for your bullet list, you set the indentation of the left side and first line of each paragraph. And if you want to ensure that there are always four points of space after each bulleted item, you set the paragraph spacing.

- Lorem ipsum dolor sit amet, consectetuer adipiscing elit.
- Sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.
- Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper.

This list uses left alignment, indentation to create hanging indents, and paragraph spacing after each item.
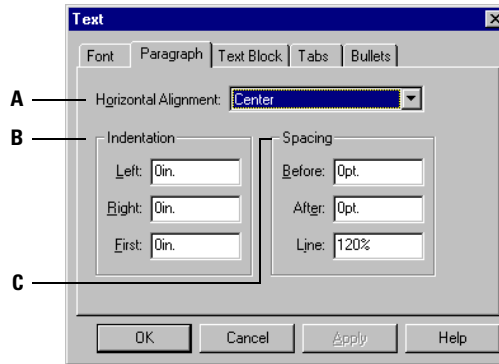
You can change the alignment, indentation, and line spacing of selected text by choosing Format > Text, then clicking the Paragraph tab.

A Choose the alignment of the text lines.

B Type the positions for indents between paragraphs and the edge of the text block.

C For Before and After, type spacing values as an absolute amount, such as 12 points (pt). For Line, you can type a spacing value as a percentage of font size or as an absolute amount.

To change horizontal alignment of a paragraph:

1. Double-click the shape to open the text block, or click the text with the text tool (**A**) on the standard toolbar.

2. Select the paragraph you want to format.

3. Choose Format > Text, then click the Paragraph tab.

4. For Horizontal Alignment, choose Left, Center, Right, Justify, or Force Justify.

5. Click Apply to apply the formats without closing the dialog box, or click OK to apply the formats and close the dialog box.

To change the indentation of a paragraph:

1. Double-click the shape to open the text block, or click the text with the text tool (**A**).

2. Select the paragraph you want to format.

3. Choose Format > Text, then click the Paragraph tab.

4. For Indentation, specify the indentation you want:

   Enter a value for Left, such as 3p2 (3 picas, 2 points) to indent the whole left side of the paragraph.

   Enter a value for Right, such as 1in (1 inch) to indent the whole right side of the paragraph.

   Enter a value for First, such as 2cm (2 centimeters) to indent the left side of the first line of the paragraph.

5. Click Apply to apply the formats without closing the dialog box, or click OK to apply the formats and close the dialog box.

To change the line spacing of a paragraph:

1. Double-click the shape to open the text block, or click the text with the text tool (**A**).

2. Select the paragraph you want to format.

3. Choose Format > Text, then click the Paragraph tab.

4. For Spacing, specify the paragraph spacing you want:

   Enter a value for Before to set the amount of space before the paragraph.

   Enter a value for After to set the amount of space after the paragraph.

   Enter a value for Line to set the amount of space between each line in the paragraph.

5. Click Apply to apply the formats without closing the dialog box, or click OK to apply the formats and close the dialog box.

Related topics

Changing vertical alignment and margins of text blocks

In most cases, the vertical alignment of text within a text block is set to Middle by default, but you can change the alignment of any text block. You can also change the margins of a text block to add or delete space between the text block and the boundary of the shape.

Using the commands on the Format menu gives you more precise control than dragging the borders of the text block, allowing you to ensure that your text is positioned properly with respect to the shape, even when you change the text. For example, you can set exact margins or make sure your text starts at the top of the text block instead of being aligned in the middle.

TIP If you want a shape's text to resize when you resize its shape, you can use the SmartShape Wizard to add formulas that change the default text behavior.
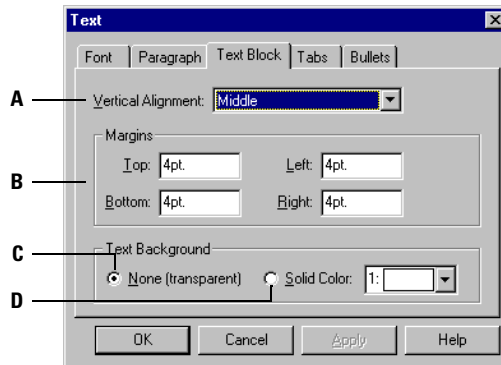
You can change the vertical alignment, margins, and background color of a selected text block by choosing Format > Text, then clicking the Text Block tab.

A Choose the vertical alignment of text within a text block.
B Type the positions for the space between the edges of the text and the text block's selection box.
C Select to make the text block transparent.
D Select to make the text block background opaque, then choose a color from the list. The color fills the area around the text, not the whole text block.

You can use the toolbar buttons on the Text toolbar to align text vertically at the top, middle, or bottom of the text block.

To change vertical alignment of text within a text block:

1. Select the shape you want to format.
2. Choose Format > Text, then click the Text Block tab.
3. From the Vertical Alignment list, choose a text alignment option.
4. Click OK.

To change the margins between the text and the edge of the text block:

1. Select the shape you want to format.
2. Choose Format > Text, then click the Text Block tab.
3. In the Margins section, enter values such as 3p1 or .5in in the Top, Bottom, Right, and Left boxes to set the text block margins.
4. Click OK.

Related topics

Rotating, resizing, and moving text blocks

When you rotate, resize, or move a shape, its text block rotates, resizes, or moves with it. You can also rotate, resize, and move a text block separately from its shape using the text block tool on the Standard toolbar. This tool moves or rotates only the text block, whereas the rotate tool and pointer move or rotate the whole shape.

In addition, Visio masters often include a control handle that you can use to reposition the text block, but if you draw your own shape or want to change the text block size, you can move or resize a text block manually.

To rotate text independently of its shape:

1. Select the text block tool (![icon]).

   The text block cursor is a page (![icon]).

2. Click the shape to select its text block.

   Green handles appear around the shape, indicating that it is selected. If the handles are gray, the shape is grouped. Choose Edit > Open Group to view the shape in the group window.

3. Drag a corner handle to rotate the text block.

   When it is over a rotation handle, the pointer changes to a pair of arrows forming a circle (![icon]). If the text block is so small that you don't see rotation handles, drag the selection handle at the center of the shape to resize the text block until you see the rotation handles.

TIP To rotate text in 90º increments, use the rotate text 90º tool (![icon]) instead of the text block tool.

To resize a text block independently of its shape:

1. Select the text block tool (![icon]).

   The text block cursor is a page (![icon]).

2. Click the shape to select its text block.

   Green handles appear around the shape, indicating that it is selected. If the handles are gray, the shape is grouped. Choose Edit > Open Group to view the shape in the group window.

3. Drag a side selection handle until the text block is the width or height you want.

To move a text block independently of its shape:

1. Select the text block tool (⟳).

   The text block cursor is a page (⊞).

2. Click the shape to select its text block.

   Green handles appear around the shape, indicating that it is selected. If the handles are gray, the shape is grouped. Choose Edit > Open Group to view the shape in the group window.

3. Point to the dotted green line that indicates that the text block is selected.

   When it is over the dotted line, the pointer changes to a double rectangle.

4. Drag the text block to a new position.

   The text block remains part of the shape, so you can move the text block completely outside the shape's borders and it will still move, rotate, and resize with the shape, keeping its new position relative to the shape.

Changing the background color of text blocks

In most Visio shapes, the area around the text, or "text background," is transparent. You can apply color to text backgrounds to make them opaque, so elements of the shape don't show through and make the text unreadable. For example, you can add a text block background to "break" a connector line when it crosses through the text.

Minim Veniam   Minim Veniam
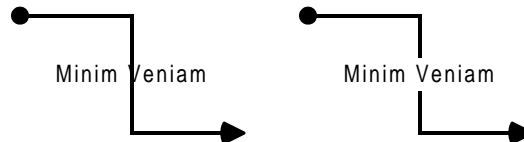
Changing the text background to solid white makes the connector line appear to "break" before and after the text block, ensuring the text is readable.

NOTE Because the background color fills in the area around the text, the color only appears when the shape contains text.

To change the color of a text background:

1. Select the shape.

2. Choose Format > Text, then click the Text Block tab.

3. For Text Background, select Solid Color, then choose a color from the list.

   The color fills the area around the text, not the whole text block.

4. Click OK.

Related topics

Copying text formatting to another shape

If you're pleased with the text formatting of a particular shape, you can quickly transfer that formatting to another shape. With the Format Painter tool you can copy all text formatting—the font, size, color, style, alignment, spacing, and text block background—in one step, rather than having to change each setting individually on the new shape.

To copy text formatting from one shape to another:

1. From the Standard toolbar, select the text tool ($\mathbf{A}$), then click the shape to open the text block with the text formatting you want to copy.

   TIP If Visio automatically zooms in on the text so that you can no longer see the other shape you want to format, press Ctrl+W to zoom out and display the entire drawing page in the Visio window.

2. Click the format painter button () on the Standard toolbar.

   The pointer changes to an arrow with a paint brush.

3. Click the new shape you want to format.

NOTE This procedure copies text formatting only. To copy all shape formatting, in step 1, use the pointer tool instead of the text tool to click the shape with the formatting you want to copy.

Using data from other programs in Visio drawings

About including other programs' data in Visio drawings

You can use any one of the following methods to insert other programs' objects or files in Visio drawings:

- Embedding
- Linking
- Converting
- Importing

The method you choose depends on the type of object or file you want to include in your Visio drawing, and what you want to do with the object or file once it's there.

Related topics

Embedding objects in drawings

Embed an object in your Visio drawing when you want to keep all the data you want to work with in one file, or if you want to transfer the file to other computers. You can embed data from programs that support OLE.

For example, if you want to distribute data about a department's computer equipment along with a network diagram you created in Visio, you can quickly embed a Microsoft Excel spreadsheet into the network diagram.

When you embed data from another program, Visio becomes the "container" for that data. The object embedded in the Visio drawing becomes part of the Visio file and, when you edit the data, you open its program from within the Visio drawing.

The changes exist only in the Visio drawing, so it's not necessary to keep that data in a separate file. If the data does exist in a separate file, the original file does not change when you change the embedded object in Visio. Also, changes to the original file do not affect the embedded object in the Visio drawing.

To embed another program's object in a Visio drawing:

1. Open the file that contains the data you want.

2. In the file, select the data you want to embed in the Visio drawing.

3. Choose that program's command to place data on the Clipboard.

    Usually the command is Edit > Copy.

4. In the Visio window, display the drawing in which you want to embed the object.

5. Choose Edit > Paste or click the Paste button (🖼) on the Standard toolbar.

    The data on the Clipboard is pasted into the drawing as an embedded object. The object appears in the center of the view, but you can select and move it as you would any Visio shape.

To embed an object from an existing file within Visio:

1. Choose Insert > Object, then, in the Insert Object dialog box, select Create From File.

2. Type a path and file name in the text box.

    Click Browse to look for the file if you're not sure of its path or file name.

3. Check Display As Icon if you want that program's icon to appear in the drawing instead of the data.

4. Click OK.

    The first page of the file appears in the Visio drawing, unless you chose to display it as an icon. You can select the object and drag to reposition it.

To create a new embedded object from within Visio:

1. Choose Insert > Object, then, in the Insert Object dialog box, select Create New.

2. From the Object Type list, select the type of object you want to create, then click OK.

   The program for creating that object opens within Visio. If the program is compatible with OLE 2, it opens in place in the Visio drawing, otherwise the program opens in its full window.

3. Create the object in the other program.

4. If the program is running in place, click anywhere outside the embedded object to close the program. If it's running in its full window, from the program's File menu, choose Exit.

Related topics

Linking objects to drawings

If another program supports OLE, you can link its data to Visio drawings. Use linking when you want to include the same data in many files. When you update the data, all links to other files reflect the changes.

For example, if you created your company logo in an OLE-compatible drawing program, and you want to include the logo in every flowchart, organization chart, and network diagram you create in Visio, you can link the logo to each Visio drawing. When you change your original logo in the drawing program, the Visio drawings update automatically.

When you link data from another program, the Visio drawing stores only a reference to the location of the file in which you created the data. You link data from a saved file, so Visio can find the data and display it.

Because linking adds only a reference to a file, the data does not significantly increase the file size of the Visio drawing. However, links require a little more maintenance. If you move any of the linked files, you need to update links. In addition, if you want to transport linked data, you must include all linked files.

You can update a linked object automatically every time you open the drawing or choose to do so only when you explicitly request it. Any time a link is updated, changes made to the object in its original file appear in the Visio drawing, and will appear in the original file if the changes were made through Visio.

To link a file to a Visio drawing:

1. Save the original file.

   Because a link consists of a reference to the original file, you must save the file before you can link to it.

2. In the original file, select the data you want in the Visio drawing.

3. Choose the command used by that program to place data on the Clipboard.

   This is usually the Edit > Copy command.

4. Display the Visio drawing to which you want to link the file.

5. In Visio, choose Edit > Paste Special, then, in the Paste Special dialog box, select Paste Link.

6. Click OK.

To create a linked object from within Visio:

1. Display the Visio drawing in which you want to display the linked object.

2. Choose Insert > Object.

3. Select Create From File.

4. Type a path and file name in the text box.

   Click Browse to look for the file if you're not sure of its path or file name.

5. Check the Link box.

6. Check Display As Icon if you want that program's icon to appear in the drawing instead of the data.

7. Click OK.

   The first page of the file appears in the Visio drawing, unless you chose to display it as an icon. You can select the object and drag to reposition it.

Related topics

Updating and managing linked objects

When you include linked objects in a Visio drawing, you need to decide how you want to update the objects when the original file changes. If you move or rename the original file, you also need to update the links in the Visio file.

By default, links for an object update automatically when you open a drawing that includes the object. If you open a drawing that includes a linked object for which Visio cannot find the original file, Visio prompts you to update links manually. If the object's program is not available—for example, if you open a drawing on a system that doesn't have that program installed—Visio displays another prompt. The visible representation of the object in the drawing is not affected, but because the object's program is not available, there isn't a working link between the Visio drawing and the object's file, so you cannot edit it.

To set a link so you can update it manually:

1. Choose Edit > Links.
2. Select the link you want to update manually.
3. Select Manual, then click Close to close the dialog box.

To update a link manually:

1. Choose Edit > Links.
2. Select the link you want to update.
3. Click Update Now, then click Close.

To change a link:

1. Choose Edit > Links.
2. Choose the link you want to change.
3. Choose the appropriate settings.

   To have Visio update the link automatically, choose Automatic.

   To update the link by using the Links command, choose Manual.

   To open the object's program and edit the object, click Open Source.

   To link a different file to the Visio drawing, click Change Source.

   When you finish viewing and changing links, click OK in the Change Source dialog box.
4. In the Links dialog box, click Close.

To break a link:

1. Choose Edit > Links.

2. Choose the link you want to break.

3. Click Break Link.

   Visio displays a warning that breaking the link will disconnect the object from its source. Click Yes to proceed. Visio converts the object to a metafile in the drawing and discards the reference to its original file.

4. Click Close.

NOTE You can also break a link between an object and its original file by converting it to a Visio shape with the Convert To Group command.

Related topics

Pasting data in particular formats

Most OLE-compatible programs place data on the Clipboard in more than one format to make the data usable to more programs. When you paste another program's data into Visio, by default it's embedded into the Visio drawing in its original format. That way, you can open the embedded data in its native program from within the Visio drawing.

Sometimes you may want to use a different format. For example, if you typed text in a Microsoft Word document, and want it to appear within a Visio shape's text block, you can copy the text in Word, then paste it into the text block as ANSI text rather than embed it as a Word document. In this example, the text is formatted according to the styles set for the shape's text block.

To paste data into a drawing in a particular format:

1. In the other program, choose the command to copy the data you want to paste into the Visio drawing.

   This command is usually Edit > Copy.

2. Display the Visio drawing that you want to paste the data in.

3. Choose Paste Special.

4. In the Paste As box, select the format you want, then click OK.

Related topics

Editing objects from other programs

After you embed or link an object from another program into a Visio drawing, you can modify the object in several ways. You can

- Edit the object in place so you can see how changes affect the way it fits into the drawing.
- Convert the object to another format.
- Change the appearance of the object's border.

Editing an embedded or linked object from within Visio

You can modify an embedded or linked object in its original program from within Visio. When you modify an embedded object, you change only the object in Visio, not its original file (if you pasted the object from an existing file). When you modify a linked file, you open and change the original file.

Most programs include a submenu of actions you can perform on an embedded or linked OLE object. Usually, the commands for editing OLE objects are Edit and Open. If the object is embedded and its program supports in-place editing, the Edit command opens the object in place. The Open command opens the object in the full program window. In Visio, this command appears at the bottom of the Edit menu.

To edit an embedded or linked object:

- In the Visio drawing, double-click the object.

  If the object is embedded and the program in which you created the object supports in-place editing, the object opens in place. If the object is linked, or its program does not support in-place editing, the other program opens in its full window and displays the object.

TIP To open an object in its full program window, even if it supports in-place editing, select the object, then choose Edit > [Object Name] > Open.

Converting pasted or imported metafiles to Visio shapes

You can convert pasted or imported metafiles to Visio groups or shapes. If a linked or embedded object is represented by a metafile, you can also convert the object; however, doing so breaks the object's link to its original file, so you can no longer edit it in its original program.

To convert a pasted or imported metafile:

1. Select the object you want to convert.
2. Choose Shape > Grouping > Convert To Group .

    TIP If you want to edit individual components of the object after you convert them, choose Ungroup rather than Convert To Group.

A metafile may contain a bitmap as a component or may consist solely of a bitmap. Bitmaps cannot be converted to Visio shapes because, in a bitmap, Visio cannot determine what part of the object is a line, what is text, and so on.

A metafile that consists of a single bitmap usually stores the bitmap in segments. When you convert such a metafile to Visio shapes, each segment of the metafile becomes an individual bitmap object. In this case you may want to convert the metafile to a group rather than ungrouping it to keep the bitmaps together.

Changing an object's appearance

You can format an object from another program in the following ways:

- You can apply a line style or attribute to change the appearance of the object's border. For example, you might choose a distinctive outline for embedded or linked objects to indicate they can be edited from within a drawing.
- You can apply a fill style or attribute to change the fill color and pattern of the object. For the fill color and pattern of an object to be visible, there must be some empty space around the object, or background, within its border.

To format an object from another program:

1. Select the object you want to format.
2. From the Format menu, choose

    Line to change the appearance of the object's border.

    Fill to change the appearance of the object's background.

    Shadow to add a drop shadow to the object.
3. Click OK.

Related topics

Importing non-Visio files as graphic images

Importing provides an alternative to linking or embedding an object when you want to include data from another program that is not compatible with OLE. When you import data into a Visio drawing, it only exists in Visio as a picture. That is, the only editing capabilities you have are resizing, repositioning, and cropping.

To do this, you export the other program's file to a format Visio can import. When you export, the file's data is directed through a filter that translates it and saves it to a separate file in a different format. Then, when you import the file into the Visio drawing, Visio uses a filter to translate the data and display the file.

Importing also works well if you only want to view or annotate the image in the Visio drawing, or if file size is your primary concern.

Because the data can go through up to two translations before it appears in the Visio drawing—one when you export from the other program, and one when you import into the Visio drawing—the picture may not look exactly the way it does in the original program.

Compatible file formats

In Visio you can import files of these formats:

- ABC FlowCharter 2.0, 3.0, 4.0 (.af3, .af2)
- Adobe Illustrator File Format (.ai)
- AutoCAD Drawing File Format R10–R13 (.dwg)
- AutoCAD Drawing Interchange (.dxf)
- AutoCAD Drawing Web Format (.dwf)
- CompuServe Interchange Format (.gif)
- Computer Graphics Metafile (.cgm)
- Corel Clipart (.cmx)
- CorelDRAW! Drawing File Format, version 3.0, 4.0, 5.0, 6.0 and 7.0 (.cdr)
- CorelFLOW 2.0 (.cfl)
- Encapsulated PostScript (.eps)
- Initial Graphics Exchange Specification (.igs)
- Joint Photographic Experts Group (.jpg)
- Macintosh Picture File Format (.pct)
- Micrografx Designer Version 3.1 File Format (.drw)

- Micrografx Designer 6.0 File Format (.dsf)
- Portable Network Graphics (.png)
- Tag Image File Format (.tif)
- Text and Comma Separated Variable (.txt and .csv)
- Windows Bitmap (.bmp and .dib)
- Windows Metafile (.wmf)
- ZSoft PC PaintBrush Bitmap (.pcx)

Most files you import into Visio drawings as graphic images appear as metafiles. However, bitmap files, such as .dib, .bmp, .pcx, and so on, remain bitmaps in the Visio drawing.

With some vector-based graphics, such as Adobe Illustrator (.ai), CorelDRAW! (.cdr), Encapsulated PostScript (.eps), and Micrografx Designer (.drw) files, lines may appear jagged in the Visio drawing. You may get better results with these file formats if you convert rather than import them.

For most files you import, Visio displays an import settings dialog box where you can specify how you want the imported file to appear in a drawing. For example, if you're importing a file in .pct format, you can specify whether to retain gradients and background and how to translate colors.

To import a non-Visio file as a graphic image:

1. Display the Visio drawing that you want to import the graphic into, then choose Insert > Picture.

2. Under Files Of Type, select the file format you want to import, then, under File Name, type the path and file name of the file you want to import, then click Open.

   If you don't know the path and file name, you can look for the file in the Look In section of the dialog box.

TIP If you want to modify a graphic image after you import it, and if the image is a metafile, you can ungroup it. Ungrouping converts the picture to Visio shapes you can use the way you use shapes that come with your Visio product. This procedure works only for metafiles—Visio cannot convert bitmaps to shapes. To make the converted graphic easier to edit, you can use the Fit Curve command.

Viewing AutoCAD DWG files in Visio

If you collaborate with AutoCAD users in the process of creating a drawing, you may need to review and annotate the drawing, then return it to your colleague to incorporate your ideas. With Visio, you can view .dwg drawings created in AutoCAD R10–13, then add your comments on a separate annotation layer in Visio.

To view an AutoCAD drawing in Visio:

1. In Visio, choose File > Open.

2. Under Files Of Type, select AutoCAD Drawing (*.dwg).

3. Under Look In, find the folder that contains the file you want and select the file, then click Open.

To add a separate annotation layer:

1. While the AutoCAD drawing you want to annotate is open, choose View > Layer Properties.

2. Click New. In the New Layer dialog box, type Redlining, then click OK.

3. In the Redlining row of the Layer Properties dialog box, click the column titled Active. A check mark appears in the column.

   NOTE Make sure not to click the Active button at the top of the column. This checks all rows, not only the Redlining row.

4. In the Redlining row, click to check the Color column.

5. In the Layer Color box at the bottom of the dialog box, select the color for your comments, then click OK to close the Layer Properties dialog box.

Related topics

Converting non-Visio files to shapes and drawings

When you open a file of a format compatible with Visio, Visio converts the file to a drawing with SmartShapes symbols. Convert data to Visio shapes when you want to transfer shapes you created in another program to a Visio drawing, so you can edit them in ways other than resizing or repositioning, as well as save them as masters onto stencils.

You can edit the converted shapes as any other Visio shapes using the Visio formatting and drawing tools. You can also flip, rotate, and resize them. However, with bitmap formats (BMP, DIB, PCX, and so on), Visio pastes the contents of the bitmap into the drawing without converting it.

Files you convert are larger in size than files you import as graphic images. If file size is your main consideration, you may want to import the data.

Converting ABC FlowCharter and CorelFLOW! files

For ABC FlowCharter 2.0, 3.0, and 4.0 and CorelFLOW 2.0 files, Visio includes masters that match shapes provided with those programs (all of the FlowCharter shapes, and many of the CorelFLOW shapes). When you open a file of one of these formats, Visio converts the FlowCharter or CorelFLOW images to the shape equivalents.

To convert a file to a Visio drawing and shapes:

1. From the Visio File menu, choose Open.

2. Under Files Of Type, select the file type you want to open, then under File Name, type the path and file name, then click Open.

   If you don't know the path and file name, you can find it in the Look In section of the dialog box.

Related topics

Printing shapes and drawings

About printing drawings

For the most part, you can print your Visio drawings by choosing Print from the file menu, and then clicking OK. Most Visio templates are set up so that the drawing-page and printed-page sizes are the same, so you don't have to change page settings to get the printed drawing you expect.

Sometimes, however, you may want to change the size, orientation, or scale of the drawing page as you create your drawing. If so, you'll need to keep the following terms in mind as you set up your drawing for printing:

- The "drawing page"—the white page you see onscreen.
- The "printed page"—the paper in the printer on which you print your Visio drawing.
- The "printed drawing"—your end result: the image on your drawing page printed onto one or more printed pages.

If you change drawing-page settings, to make sure the drawing prints correctly, you may need to change the printed-page settings as well.

For example, if you base a new drawing on a flowchart template with a portrait (tall) drawing-page orientation, but you create a left-to-right flowchart, you may want to change the drawing-page orientation to landscape (wide). To print the drawing the way it appears on the screen, you also need to change the printed-page orientation.

If you work with large drawings, it's possible to have a drawing page that's larger than the printed page. For example, if you want to create a large network dia-gram, you may want to increase the size of the drawing page that opens with the network template. If you increase the drawing-page size but don't change the paper in your printer, when you print the drawing, Visio "tiles" it, or prints it over multiple pages.

For multiple-page drawings, you can choose to add headers, footers, and page numbers to the printed drawing.

Related topics

Previewing drawings before you print

Before you print a drawing, you can preview it to see whether the shapes on the drawing page fit as you intend on the printed page. In the print preview window, gray lines indicate where the drawing continues onto multiple pages, or "tiles."

If the print preview window shows that the drawing will tile, you may want to reposition some shapes so they print on the correct page. To see how repositioning shapes on the drawing affects the printed page, you can display the drawing window alongside the print preview window.

If, after you see the print preview, you want to make changes to the drawing page or printer settings, such as orientation, size, margins, and so on, choose Page Setup from the File menu.

A Click to print the drawing. The number of pages it prints on corresponds to the number of tiles in the print preview window.

B Click to move to the first tile.

C Click to move to the previous tile.

D Click to move to the next tile.

E Click to move to the last tile.

F Click to see one tile, or printed page, at a time.

G Click to see how the drawing page will tile.

H Click to zoom in or out.

I Click to close the Print Preview window.
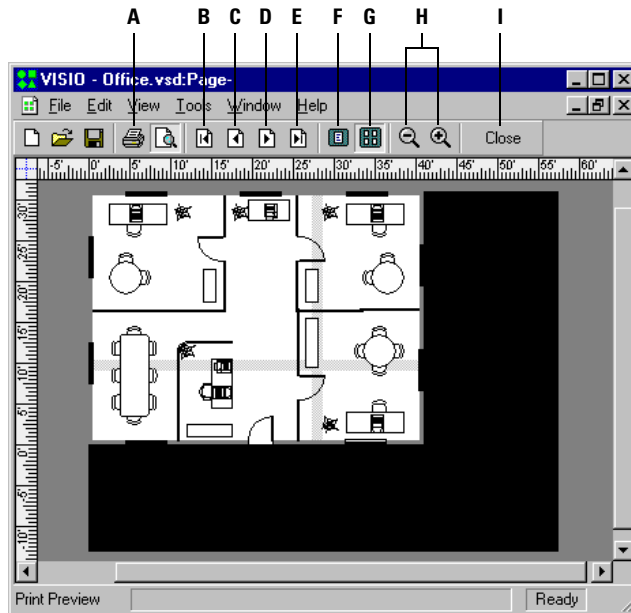
To preview a drawing before printing:

• From the Standard toolbar, choose the Print Preview button (icon).

TIP While working with your drawing you can quickly determine whether it fits within the printable area by choosing View > Page Breaks.

To edit a drawing while in Print Preview:

1. In the print preview window, choose Window > New Window.

   Visio opens a new drawing window and displays the drawing.

2. Choose Window > Tile.

   Visio displays the drawing in the print preview window and the drawing window.

3. In the drawing window, edit the drawing using the Visio tools and commands.

   Changes you make to the drawing appear in the print preview window.

Related topics

Changing margins and centering drawings

To fine-tune a drawing's placement on the page, you can center it on the drawing page before you print, or you can adjust the margins or center the drawing on the printed page only.

To center a drawing on the drawing page:

• Choose Tools > Center Drawing.

   Visio centers the drawing. If the drawing page and printer paper are the same size, the drawing will be centered on the printed page as well.

Repositioning a drawing on the printed page

Before you can reposition a drawing on the printed page, you must adjust the drawing-page size to eliminate all the white space around the drawing. It's best to use this method when you want to print a completed drawing.

To adjust the drawing-page size to fit the drawing contents:

1. Choose File > Page Setup.

2. For Page Size, select Size Page To Fit Drawing, then click OK.

   The page size changes to fit the drawing without any surrounding white space. Onscreen it may appear as though you zoomed in on the drawing.

NOTE If you want to add shapes later, you may need to open the Page Setup dialog box again to set the drawing page back to its original size.

After you size the page to fit the drawing, you can adjust the drawing's placement on the printed page by changing margins or centering the drawing.

To change margins or center a drawing on the printed page:

1. Choose File > Page Setup, then, in the Page Setup dialog box, click Print Setup.
2. For Margins, type the margin settings you want.

   To center the drawing, under Center, check Left/Right, Up/Down, or both.
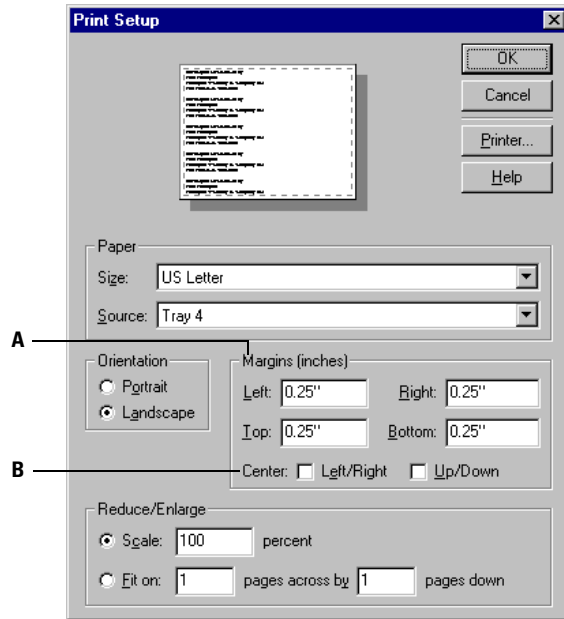
A Type the margin settings you want.

B Check Left/Right to center a drawing between the left and right margins. Check Up/Down to center it between top and bottom margins.

TIP To preview the drawing as it will appear on the printed page, choose File > Print Preview.

Related topics

Printing drawings to paper or files

For many drawings, you can use the default printer settings. You can print an entire drawing or a range of pages and you can center a drawing on a page before you print. You can also print to a PostScript file if you want to send a drawing to another printer or deliver a file to a service provider to produce.

Visio templates are set up to print to your default Windows printer. However, you may sometimes want to print to a different printer or change the properties set for your default printer.

To choose a printer or change printer settings:

1. Choose File > Page Setup.

2. Click Print Setup, then click Printer.

3. For Name, select a printer from the list, then click OK.

4. In the Print Setup dialog box, choose the settings you want, then click OK.

5. Click OK in the Page Setup dialog box.

   Visio redraws the drawing page with the new settings.

To print a drawing:

1. Choose File > Print.

2. In the Print Range section, choose an option for which pages to print:

   Choose All or Current Page, or specify a range of pages in the Pages From and To boxes.

   If a foreground page is displayed, choosing the Current Page option prints the foreground page, its background, and subsequent background layers. If a background is displayed, Current Page prints that background page and subsequent background pages.

3. For Copies, enter the number of copies you want.

4. For Printer, specify to print to a file or to print all colors as black.

5. Click OK.

TIP In Windows 95, to send a file to a printer, you can also drag the file icon from the desktop or from Windows Explorer and drop it on a printer icon.

To print a drawing to a PostScript file:

1. Choose File > Print.
2. For Name, select a PostScript printer from the list.
3. Check Print To File, then click OK.
4. In the Print To File dialog box, choose a location and type the name of the file, then click Save.

Related topics

Printing large and small drawings

If the size of a drawing is larger than the paper in your printer, Visio tiles the drawing—that is, the drawing prints across several sheets of paper. Visio does not crop a drawing to fit within the margins.
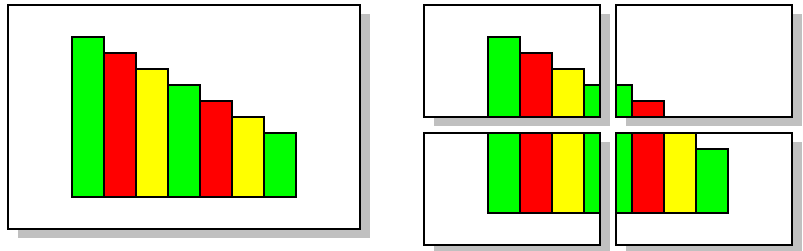
A drawing on a large drawing page will print by tiling across several sheets of printer paper.

Small drawings print on part of a page. By changing margin settings, you can print a small drawing at various locations on a sheet of paper.
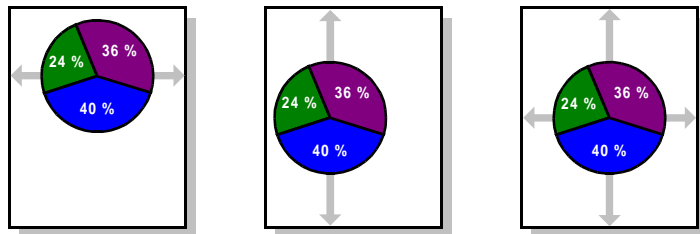
You can control where the image on a small drawing prints on a printed page.

Printing large drawings

You can control the way large drawings tile. For example, you can control the amount the drawing overlaps on adjacent pages. You can also specify the number of pages across which a drawing tiles. Visio reduces or enlarges the drawing to fit the number of pages you specify.

To determine whether a large drawing will tile:

- Choose View > Page Breaks.

    Gray lines appear on the drawing page, indicating the printed page size and margins selected in the Print Setup dialog box.

To increase the area where tiled drawings overlap:

1. Choose File > Page Setup, then, in the Page Setup dialog box, click Print Setup.
2. Type larger amounts for the margin settings, then click OK.

    The larger the margins, the greater the overlap.
3. Click OK in the Page Setup dialog box.

To specify the number of pages for a tiled drawing:

1. Choose File > Page Setup, then, in the Page Setup dialog box, click Print Setup.
2. For Reduce/Enlarge, select Fit On, and then specify the number of sheets across and down.

    TIP Choose the number of pages that represents an area proportionate to the drawing page. For example, if the drawing is square and you specify two sheets down and four sheets across, Visio fits the drawing on an area that is no more than two sheets either way so the drawing stays in proportion.
3. Click OK in both the Print Setup and Page Setup dialog boxes.

Printing small drawings

If your drawing onscreen is smaller than the size of the paper you're printing it on, you can specify its position on the printed page. Before you can control its position, you must adjust the drawing-page size to eliminate all the white space around the drawing.

To adjust the drawing-page size to fit the drawing contents:

1. From the File menu, choose Page Setup.
2. For Page Size, select Size Page To Fit Drawing, then click OK.

    The page size changes to fit the drawing without any surrounding white space. Onscreen it may appear as though you zoomed in on the drawing.

NOTE If you want to add shapes later, you may need to set the drawing page back to its original size.

After you size the page to fit the drawing contents, you can specify the drawing's placement on the printed page.

To specify where on the page a small drawing prints:

1. Choose File > Page Setup, then, in the Page Setup dialog box, click Print Setup.

2. Select the combination of margin and center settings to place the drawing at the location you want, then click OK.

3. Click OK in the Page Setup dialog box.

Related topics

Reducing and enlarging drawings for printing

To print a drawing at various sizes, or to fit a drawing within the printable area of the paper, you can reduce or enlarge a drawing for printing.

Because Visio treats the drawing page itself as part of the drawing, you must adjust the drawing-page size onscreen to eliminate all white space around the drawing to get the results you expect when reducing or enlarging a drawing.

To reduce or enlarge a drawing:

1. Choose File > Page Setup.

2. For Page Size, select Size Page To Fit Drawing, then click OK.

   The page size changes to fit the drawing without any surrounding white space. Onscreen it may appear as though you zoomed in on the drawing.

3. Choose File > Page Setup, then click Print Setup.

4. For Reduce/Enlarge, select one of the following options:

   To specify a percentage, select Scale, then type the percentage by which you want to enlarge or reduce the drawing. To reduce the drawing, type a number less than 100; to enlarge it, type a number greater than 100.

   To specify a number of pages, select Fit On, then type the number of pages across and down on which you want the drawing to print.

5. Click OK in both the Print Setup and Page Setup dialog boxes.

6. Choose File > Print Preview to make sure the drawing is the correct size and prints where you want it to on the page, and on the correct number of pages.

NOTE If you want to add shapes to the drawing later, you may need to set the drawing page back to its original size.

Related topics

Printing selected shapes or pages

When you don't want to print your entire drawing, you can print only pages you specify, only the currently displayed page, or only a page's background. You can also define shapes or layers as non-printing so they show up on the screen but not on the printed page.
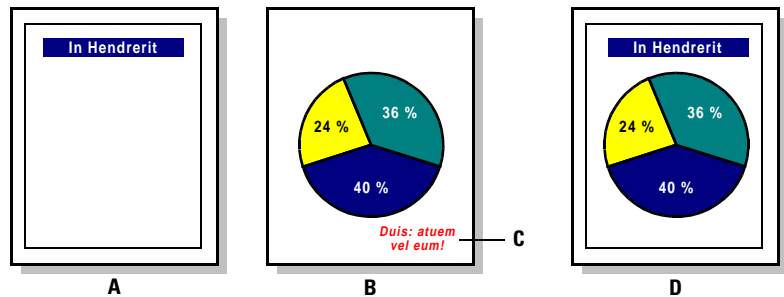
The printed page includes all background and foreground shapes except the non-printing shape.

A Background shapes

B Foreground shapes

C Shape assigned to a non-printing layer

D Printed page

To print only the pages you specify:

1. Display the drawing you want to print, then choose File > Print.

2. Under Page Range, click Pages, then type the page number range in the From and To boxes.

   To print only the page that's displayed onscreen, click Current Page.

To print a background separately:

1. Display the background you want to print.

2. Choose File > Print.

3. Under Page Range, click Current Page, then click OK.

TIP To print a page without its background, display the page and cancel its background assignment before printing. To cancel a background, choose File > Page Setup, then click the Page Properties tab. Under Background, select None, then click OK. After printing, you can reassign the background by selecting it from the list of backgrounds on the Page Properties tab.

To set a shape as nonprinting:

1. Select the shape, then choose Format > Behavior.

2. Check Non-Printing Shape, then click OK.

TIP To set all shapes on a layer to nonprinting, you can choose View > Layer Properties to set the layer to nonprinting.

Related topics

Printing headers, footers, and page numbers

When you print a multiple-page drawing you may want certain information, such as the name of the drawing file, a border, or your company logo, to appear on each page. You may also want each page numbered automatically.

By using backgrounds and data fields, you can easily set up items that automatically appear and print on every page of a drawing. In addition, for certain common items, such as page numbers, the drawing file name, and the date and time, you can apply headers, footers, and page numbers that appear in the printed drawing only.

Adding headers, footers, and page numbers to the printed drawing only

You can add automatic headers, footers, and page numbers on the Header/Footer tab of the Page Setup dialog box. You type formatting codes for common elements, such as page number, time, and date, and specify whether you want the elements to appear in the upper or lower left, center, or right portion of the page.

A formatting code is simply an ampersand (&) followed by a letter. For example, to add a page number, type &p.

Header and Footer formatting codes

For	Type
Page number	&p
Current time	&t or &T
Current date	&d (short) or &D (long)
Ampersand	&&
File extension	&e
File name	&f
File name and extension	&f&e
Page name	&n
Total printed pages	&P

To add headers, footers, or page numbers to the printed drawing only:

1. Open the drawing, and choose File > Page Setup, then click the Header/Footer tab.

2. For Header and Footer, type the formatting code you want in the box that corresponds to the section of the printed page on which you want the header or footer to appear.

3. For Margins, type a value to specify how far the header or footer prints from the top or bottom of the page.

4. To open the Font dialog box and edit the header or footer text, click Choose Font.

5. Click Apply to apply the header/footer settings and continue working in the dialog box. Click OK to apply the settings and close the dialog box.

To add a custom header or footer that appears on the drawing page and the printed page:

1. Start a new drawing and, on the Page Properties tab in the File > Page Setup dialog box, make the first page a background.

   Note the name of this page—you'll need to use it when assigning the background to a foreground.

2. On the background, add any shapes you want to repeat on each page of the drawing, for example, a company logo, a border, or a text field that displays up-to-date drawing information.

   TIP For border shapes, choose File > Stencils > Visio Extras > Borders.

3. Insert a new page, and, on the Page Properties tab in the File > Page Setup dialog box, make this page a foreground. Under Background, assign the background you just created.

4. Click OK.

NOTE Setting up drawing elements that repeat on each page works best when you're starting a new drawing. If you start by creating the background and assigning it to the first foreground page, it is automatically assigned to each subsequent page you add within the file.

Related topics

Publishing drawings on the Internet

About converting shapes and drawings to HTML

You can easily prepare Visio drawings so they can be viewed using a World Wide Web browser. You can prepare drawings in two ways:

- Save them as HTML pages. For example, you have a new departmental organization chart you want everyone in the company to see. To immediately make the chart available on the intranet, save it as an HTML page.

- Export them in .jpg, .gif, or .png format. For example, you have a Web page on the intranet where you've explained the complex process your department uses to handle customer inquiries. Recently, you created a block diagram that makes the process easier to understand. To include the graphic on your existing Web page, export it as a .gif, and add an <IMG> tag to your Web page HTML code.

Save drawings as HTML pages when

- You want to simultaneously export more than one page of a multiple-page drawing.

- Shapes in your drawing include navigational links (hyperlinks) and you want to make your drawing an image map on the Web page.

- You want Visio to create an HTML-coded page and convert a drawing to a format Web browsers can use.

Export drawings in .jpg, .gif, or .png format when

- You already have an HTML-coded page in which you want to insert a Visio drawing.

- You want to export only a portion of a drawing.

Related topics

Saving drawings as HTML pages

When you save a drawing as an HTML page, Visio creates a Web page that contains the drawing and HTML source code. You can immediately view the HTML page(s) using a Web browser.

If your drawing has multiple pages, Visio creates an HTML page for each drawing page and adds navigation buttons to each page.

By default, if shapes in your drawing have navigational links to other Visio drawing pages, files created in different applications, or to Web sites, Visio preserves these links as active on the HTML page. The Visio drawing becomes a "client-side image map." An image map is a graphic with different regions, some of which are "hot." In client-side image maps, all the information a Web browser needs to process a click on a hot region is stored in the HTML file with the image data.

Visio adds navigation buttons to each page of a multiple-page drawing when you save it as an HTML page.

You can also save a drawing with navigational links as a "server-side image map". In server-side image maps, a program on the Web server examines map data associated with the hot regions and processes the links.

Visio formats the saved HTML files with a template. The template is an HTML file with HTML tags and codes that correspond to elements from the drawing, such as page number, the page graphic, and anchors or jumps to other HTML pages or files. You can create your own template for saving Visio drawings as HTML files by modifying the default template.

To save a drawing as HTML pages:

1. In Visio, display the drawing you want to save.
2. Choose File > Save As.
3. Type a name for the HTML file using the .htm extension, such as Drawing.htm.
4. For Save As Type, choose HTML files (*.htm, *.html), choose where to save the file, then click Save.
5. In the Save As HTML dialog box, choose the graphics format and the drawing pages you want the HTML file to include.
6. Click Filter Settings to control the on-screen image size of the saved drawing or to choose options specific to the graphics format, then click OK twice.
7. Visio prompts you to view the HTML pages. Click Yes to open your Web browser and view the first HTML page.

To save a drawing as HTML pages without preserving links:

1. In Visio, display the drawing you want to save.

2. Choose File > Save As.

3. Type a name for the HTML file using the .htm extension, such as Drawing.htm.

4. For Save As Type, choose HTML files (*.htm, *.html), choose where to save the file, then click Save.

5. In the Save As HTML dialog box, choose the graphics format and the drawing pages you want the HTML file to include, then click Options.

6. In the Export Options dialog box, uncheck Enable Image Maps, then click OK twice.

7. Visio prompts you to view the HTML pages. Click Yes to open your Web browser and view the first HTML page.

Related topics

Creating templates for saving and formatting HTML pages

Visio formats saved HTML pages with a template. The template is an HTML page with regular HTML tags and special substitution codes that correspond to elements from the drawing, such as page number, the Visio graphic, and links (or anchors) to other HTML pages or files. When you export, Visio substitutes drawing elements for the codes.

You can create a custom template for saving and formatting HTML pages by modifying the Visio default template and by including substitution codes. When you save a drawing as an HTML file, you can choose which template you want to use.

To create a custom template:

1. Copy the default HTML template, Dfltdoc.htm, which is located in the \Visio\Solutions\Visio Extras folder.

2. Open the copy in a program that can open and edit HTML files, such as Notepad.

3. Change or delete the existing HTML tags or add new ones. Rearrange or delete the substitution codes.

4. Save the revised template under a new name with an .htm extension.

To use a custom template when you save a drawing as HTML pages:

1. In Visio, create or open the drawing you want to save, then choose File > Save As.

2. Type a name using the .htm extension, such as Drawing.htm.

3. For Save As Type, choose HTML files (*.htm, *.html), choose where to save the file, then click Save.

4. In the Save As HTML dialog box, choose the graphics format and the drawing pages you want the HTML file to include, then click Options.

5. In the Export Options dialog box, under HTML Template, check Use Custom Template, click Browse to locate your custom template, then click OK.

6. In the Save As HTML dialog box, click OK. Visio prompts you to view the HTML pages. Click Yes to open your Web browser and view the first HTML page.

Related topics

Exporting shapes and drawings in .jpg or .gif format

When you export a Visio drawing as a .jpg (Joint Photographic Experts Group) or .gif (Graphics Interchange Format) graphic, you convert it to a format you can distribute over the Internet or intranet. The .jpg and .gif formats are supported by virtually all Web browsers.

Once the Visio drawing is exported, you can include it in an HTML page by adding the <IMG > HTML tag (for example, <IMG SRC="drawing1.gif" >) to the page.

If a drawing includes shapes with navigational links to other Visio drawing pages, to files created in different applications, or to Web sites, the links are lost when you export.

To export a drawing in .jpg or .gif format:

1. In Visio, select the shape or drawing you want to export.

2. Choose File > Save As.

3. For Save As Type, choose .jpg , .gif, or .png, then click Save.

4. In the Output Filter Setup dialog box, choose the options you want, then click OK.

Related topics

Using Visio with Microsoft Office

About Visio and Microsoft Office 97

Visio products are fully compatible with Microsoft Office 97 programs, so you don't need to spend time getting used to a new environment when you work with Visio.

Full Office 97 compatibility means Visio toolbars, menu commands, and accelerator keys are similar to those you find in Office programs. It also means you can easily exchange shapes, text, and other objects between Visio and Office programs.

Some features in Visio that provide improved Office 97 compatibility include

• **Full-screen view** When you view your Visio drawing in the full-screen, Visio hides the menus, toolbars, and everything but the drawing page so you can view the drawing in the maximum space your screen allows. You can use the left and right arrow keys or the mouse to navigate between pages. Full-screen view is read-only, so to edit your drawing, press the Esc key to return to the normal view.

• **Improved formatting toolbar buttons** Line, Fill, and Text formatting buttons on the toolbars now provide pop-up palettes, similar to those in Microsoft Excel, from which you can select the formatting you want.

If you are running Office 97, you can use the following features in Visio:

- **Routing drawings through email** You can add a routing slip to a drawing that you send through email so that you are notified when the drawing is routed from one person to the next, and the drawing is returned to you when the last person on the list finishes reviewing it.

  You can also save a drawing directly to an Exchange folder.

- **Recording activities in the Outlook Journal** In Journal, you can automatically record time you spend using Visio.

NOTE Visio is also an Office 95-compatible program.

Related topics

Displaying and editing Visio drawings in Internet Explorer

From Internet Explorer you can open and work on your Visio drawings without leaving the Internet environment. You can open a Visio drawing (.vsd) file by using the Open command—the same way you open an HTML or Office 97 program file. Visio opens the drawing with Visio menus and toolbars, and opens stencils you saved with the drawing. When you open a drawing from within Internet Explorer, Visio provides the same tools that are available when you work with it as a standalone program.

After the Visio drawing is open within Internet Explorer, you can navigate between the drawing and other Office documents or Web pages by clicking the Forward and Back buttons on the Internet Explorer toolbar.

To open a Visio drawing from within Internet Explorer:

1. In Internet Explorer, choose File > Open.

2. Under Open, type the path and name of the Visio file, or click Browse to find it.

   If you click Browse, the Open dialog box appears. Under Files Of Type, select All Files to display Visio files in the list.

3. When you find the file, select it and click Open.

   The file opens in Visio in the Internet Explorer environment.

4. Click the Tools button on the Internet Explorer toolbar to display the Visio toolbar and menus.

TIP You can navigate between the Visio drawing, other documents, and Web pages by clicking the Forward and Back buttons on the Internet Explorer toolbar. You can also type the URL of the Web site or path and file name of the document in the Address box.

Related topics

Exchanging data between Visio and Microsoft PowerPoint

You can include Visio drawings in your Microsoft PowerPoint presentations to strengthen and clarify your ideas, as well as to take advantage of the PowerPoint slide features. You use OLE to embed or link Visio shapes and drawings into PowerPoint slides. You can open Visio from within PowerPoint to create new drawings, or you can copy and paste or drag and drop existing shapes and drawings.

You can also include PowerPoint shapes and clip art in your Visio drawings by importing them as graphic images.

Related topics

Including Visio drawings in Microsoft Binder reports

You can use Microsoft Office Binder to include a full-page or multiple-page Visio drawing in a larger report.

For example, a report you've composed for a bid on a building project includes a narrative written in Microsoft Word, a budget calculated in Microsoft Excel, and an extensive floor plan and project timeline created in Visio. By including the Word, Excel, and Visio documents in a Binder in the order you want them to appear in the report, you can save, move, print, and distribute them as a single file. You can also add consecutive headers and footers to each Binder page.

By gathering documents into a Binder, rather than dealing with them separately, you can

*   Add headers, footers, and other elements from within the Binder to ensure a consistent look across documents (Office 97).
*   Paginate the entire Binder at one time.
*   Preview the entire Binder before printing it (Office 97).
*   Print the entire Binder at one time.

To use the Microsoft Office Binder, you must have Microsoft Office 95 or Office 97. For details about the Binder, see Microsoft Office Binder online help.

To include a Visio drawing in a Binder:

1. In Windows 95 or Windows NT 4.0, from the Start menu, choose Programs, then choose Microsoft Binder.
2. Drag the Visio drawing you want to include from the Desktop or from Windows Explorer into the left pane of the Binder window.
3. From the Binder File menu, choose Save Binder As to save the Binder file.

TIP Although you can create a Visio drawing from within the Binder, it's more efficient to use the Binder to assemble finished documents.

Related topics

Using Visio data in other programs′ documents

About including Visio data in other programs′ documents

You can use any one of the following methods to include Visio data in a document created in another program:

- Embedding
- Linking
- Exporting

The method you choose depends upon the capabilities of the other program and how you want to work with the Visio data once you've placed it in the other document.

NOTE Every method except exporting uses OLE to integrate data from different programs. With OLE, you can open Visio from within the other program to modify the Visio shapes and drawings.

Related topics

Embedding shapes and drawings

When you embed Visio data, it becomes part of the other program's file, and when you edit it, you edit only the version that's embedded in the other program.

Embedding is useful in cases when you don't want to keep a separate Visio file for the data you include in the other document. Or, if you want to transfer the file to other computers, you can transfer all the data in one file. Embedded objects, however, increase the file size; if you want to keep the data in a separate Visio file, you have to update the data in both places.

When you embed Visio data in another OLE-compatible program, it becomes part of the other program's document.

From within a document in a program that supports OLE, such as a Microsoft Word document, you can create a new embedded Visio drawing or embed an existing Visio drawing.

To create a Visio drawing in another document:

1. In the document, choose Insert > Object (or the appropriate command for that program).

2. In the dialog box, click the options for creating a new file, then, under Object Type, choose Visio 5 Drawing, and click OK.

3. In the Visio Choose A Drawing Template dialog box, open the folder that contains the drawing type you want, select the template for the drawing type, then click Open.

4. Create the Visio drawing.

5. If Visio is running in its own window, choose File > Exit. If it's running within the other document (in place), click somewhere in the document outside the Visio drawing to close Visio.

6. To edit the Visio drawing from within the document, double-click the drawing.

TIP You can also embed an existing Visio drawing from within another document. Follow step 1 above, then, in the dialog box, click the option for creating an object from an existing file.

To embed selected Visio shapes:

1. In Visio, select the shapes you want to embed.

2. Choose Edit > Copy (or press Ctrl+C).

3. Open the document in which you want to embed the shapes, then choose Edit > Paste (or the equivalent command).

To embed an entire Visio drawing:

1. In Visio, make sure nothing is selected.

2. Choose Edit > Copy Drawing.

   This command copies the entire drawing, including shapes on other drawing pages and on backgrounds.

3. Open the document in which you want to embed the drawing, then choose Edit > Paste (or the equivalent command).

   When you embed a multiple-page Visio drawing, only the page displayed at the time you choose Copy Drawing appears in the container document.

Editing an embedded Visio object in place

In many OLE 2-compatible programs, you can edit an embedded Visio object without leaving the program (or "container application")—this is called "in-place editing." A special set of Visio menus and toolbars temporarily replaces most of the menus and controls in the active window while you edit the Visio object.

To edit an embedded Visio object in place:

1. In the container application, double-click the embedded Visio object.

   A special set of Visio menus and controls appears.

2. Edit the Visio drawing.

3. Click anywhere outside the drawing window to exit the in-place editing controls.

Related topics

Linking shapes and drawings

The way you link shapes and drawings is similar to the way you embed them. However, when you link a Visio shape or drawing to another document, the other document contains only a reference to the Visio drawing file, rather than the actual drawing. You link data in a saved Visio file so the other program can find the data and display it.

Linking works well when you want to include the same Visio data in more than one document. When you update the data, you only need to update it in one location. The versions that are linked to other documents reflect the changes automatically.

Linking a Visio file to another document does not increase the file size the way embedding a Visio object does. However, links require a little more maintenance. If you want to transport the data, you must make sure to transfer all linked files to the other computer.
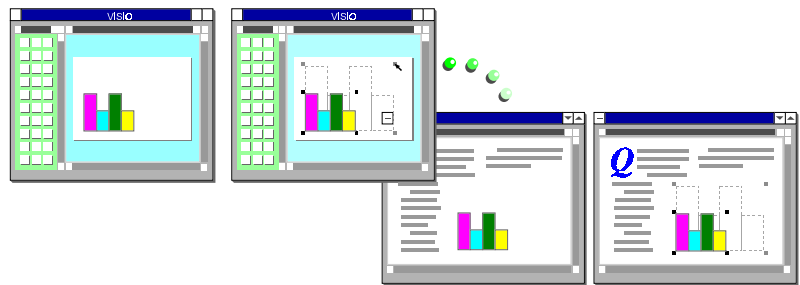
When you make changes to a drawing that's linked to another document, the changes appear in the other document simultaneously.

To link a Visio file to another document:

1. Open the drawing you want to link. If it's a multiple-page drawing, display the page you want to appear in the other document.

   NOTE Because a link is a reference to a file, you can only link files that are saved to a location on a disk. If you haven't saved the drawing you want to link, choose File > Save.

2. Make sure nothing on the drawing is selected, then choose Edit > Copy Drawing.

3. Without closing Visio, open the document in the other program in which you want to include the Visio drawing.

4. Choose that program's command for linking objects.

   In Microsoft Office programs, choose Edit > Paste Special.

5. In the dialog box, make sure Visio 5 Drawing Object is selected, select Paste Link, then click OK.

   The drawing you copied appears in the document, with a link to the original Visio file.

Related topics

Dragging Visio shapes and drawings into other programs

If the other program in which you want to include Visio data is compatible with OLE 2, an alternative to using menu commands to paste Visio shapes is to drag shapes from a Visio drawing or stencil into the other document. Dragging and dropping shapes does not use the Windows Clipboard, so data on the Clipboard is not affected.

You can drag shapes from the drawing page or masters from stencils. When you drop a master, an instance of the master appears in the document and the master is not removed from the stencil. If you drag multiple shapes from a drawing page, they are treated as one object in the other document.

Pointer tool changes

When you drag shapes between programs, the pointer tool changes in response to the action you take.

How the pointer tool changes

Pointer appearance	Action
	Press Ctrl and then drag to move the selected shapes to the other document.
	Press Ctrl+Shift and then drag to copy the selected shapes to the other document.
	Cannot drop shapes in that document.

TIP Before you drag shapes, position the Visio window and the other program's window so you can see the shapes and the document in which you want to drop them.

To position program windows quickly:

1. Open Visio with the drawing or stencil that contains the shapes you want to drag into another document, then, without minimizing the Visio window, open the other program.

2. Right-click the Windows taskbar and choose Tile Vertically.

To drag and embed shapes into another document:

• Select the shapes, then press Ctrl and drag the shapes into the document.

 Dragging the shapes from the drawing page copies them into the other document. To move the shapes (so they no longer appear on the drawing page), don't press Ctrl as you drag.

To drag and link shapes to another document:

• Select the shapes and, when you select the last shape, hold the mouse pointer down. Then press Ctrl+Shift and drag the shapes into the document.

 NOTE If you press Ctrl+Shift before pressing the mouse button to drag the shapes, the pointer becomes a magnifying glass for zooming in on the drawing, and you will not be able to drag the shapes.

Related topics

Exporting shapes and drawings

When you export Visio data, it is directed through a filter that converts the Visio data to an independent non-Visio file. You then open that file or import it as a picture in the other program. Exporting works best when you want to include Visio data in a document that is not compatible with OLE, or if you want to include a Visio drawing in an HTML document you want to post on the Web.

After you export a Visio drawing to another format and insert it in another document, it's considered a static picture. That means you will not be able to open Visio to edit it from within the other program. In addition, because your Visio file can go through up to two translations before it appears in the other program—one when you export from Visio, and one if you import into the other program—the graphic image may not look exactly the way it does in the Visio drawing.

For example,

- By exporting a Visio drawing in .ai format, you can open it in Adobe Illustrator and edit it using that program's tools.
- By exporting a Visio shape as a Windows bitmap, you can open the bitmap in any program that supports .bmp format.
- By exporting a Visio drawing in a format another program can open, you can include Visio data as a graphic image in the other program's documents.
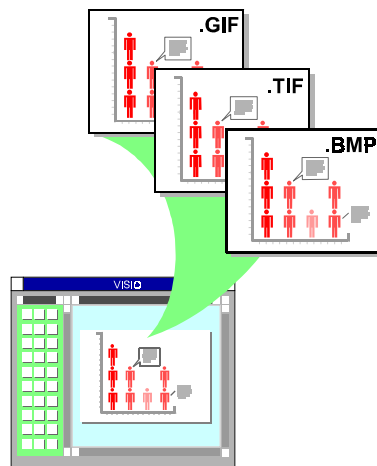
Exporting translates a file to a non-Visio format that the other program can import.

TIP If the other program in which you want to include Visio data supports OLE, it's best to link or embed the Visio data rather than export it. OLE produces more consistent results and allows you to edit the data after you include it in the other program.

To export shapes or drawings to another file format:

1. To export all the shapes on a page, display the page you want to export.

   To export specific shapes, select the shapes you want to export. (Use Shift+click to select more than one shape.)

2. Choose File > Save As, then

   For Save As Type, choose the format you want.

   For File Name, type a name for the file.

3. Click Save.

   Visio exports the shapes or page in the format you choose. You can use the file in any program that can read files in that format.

4. If necessary, in the Filter Setup dialog box, choose the export settings you want, then click OK.

Related topics

Sending drawings through electronic mail

You can send a Visio drawing to another user via e-mail. Visio products are compatible with electronic mail programs that support the Messaging Application Program Interface (MAPI) protocol.

Visio also takes advantage of Microsoft Office 97 routing features, including sending drawings to Microsoft Exchange folders, adding routing slips to drawings you send through e-mail, and adding journal entries to Outlook.

To include a drawing file in an e-mail message:

1. While the drawing file is open, choose File > Send To > Mail Recipient.

   If your mail program hasn't been running, it starts; then a new e-mail message containing the Visio icon and the file name appears.

2. Address the message, type any accompanying data, and send the e-mail message as you would any other message.

To view a Visio file sent by e-mail:

• Open the e-mail message, then double-click the Visio icon.

   NOTE Visio must be installed to open drawings you receive in e-mail.

Microsoft Office 97 document-routing support

If you use Office 97, you can send a drawing with a routing slip or send a drawing directly to a folder in Microsoft Exchange.

A Click Address to add recipients to the To list.

B Type your message here.

C Select whether to route the drawing to one person at a time or to everyone at once.

D Click to add the routing slip to the drawing. After you add the slip you can route the drawing.

To send a drawing with a routing slip:

1. Display the drawing you want to send, then choose File > Send To > Routing Recipient.

2. Click Address to open your post office address list and select the individuals or groups to whom you want to route the drawing. When you've finished adding to the recipient list, click OK.

3. If you need to route the drawing to people in a specific order, select a person's name, then click the up or down arrow in the Move section to change that person's position on the list.

4. Under Route To Recipients, select whether to route the drawing to one person at a time or to everyone at once.

   If you choose to route the drawing to one person at a time, the first person on the list views or updates the drawing, then routes the drawing to the next person, and so on.

   If you route a drawing to a group alias, everyone in the group will receive the drawing at the same time. To send the drawing to one group member at a time, list each of their names rather than the group alias.

5. Check Track Status or Return When Done to receive an update as each person on the list passes the drawing to the next person or to have the drawing sent back to you after everyone has seen it.

6. Under Message Text, type the text you want in the email message. When you're finished, click Add Slip.

7. Choose File > Send To > Next Routing Recipient to send the drawing to the first person on the routing list.

   NOTE You can choose to send the drawing (step 7) later. If you try to close the file before sending the drawing, Visio displays a message reminding you that it contains a routing slip. You can then choose to route the drawing, send it without the routing slip (you won't be able to track its status and it won't automatically be returned to you), or not to send it at all.

TIP If you receive a routed drawing and want to route it to the next person, choose File > Next Routing Recipient. If you want to route the drawing to someone who isn't on the list, choose File > Other Routing Recipient, and then follow steps 2–7 above.

For details about routing files, see your Microsoft Office 97 documentation.

To send a drawing directly to a Microsoft Exchange folder:

1. Display the drawing you want to send, then choose File > Send To > Exchange Folder.

2. Select the folder in which you want to place the drawing, then click OK.

   Visio saves the drawing in the Microsoft Exchange folder as an embedded object, so you can open the drawing in Visio from within Microsoft Exchange.

Related topics

Saving time with styles and templates

About working with styles and templates

You can use styles and templates in Visio to create drawings that can be quickly and efficiently revised.

Using styles

A "style" is a named collection of formatting attributes—for example, blue fill and magenta bold text—that you can apply to your shapes to give them a consistent look and make them easier to revise. By editing the style, you can simultaneously change the look of all shapes formatted with that style.

A style can contain line, fill, and text formatting attributes—a single attribute or any combination of the three. Visio templates come with styles built in, but you can also define your own.

Creating templates

When you know that you'll be creating multiple drawing files that need a consistent look, consider creating a template on which to base all the drawings. Creating your own template eliminates the need to open the appropriate stencils, create styles, and establish page settings for each drawing file, because they are all contained in one place.

Select three shapes and apply one style to make them look the same.

Also, you can increase your efficiency by creating your own templates when

- Your drawings require customized settings for page size or scale, window size and position, shape or text styles, color palette, snap and glue, or printing, create a template with the appropriate settings in place.
- Your drawings often use a standard background or set of layers—for example, you place your company logo in every drawing—create a template with the background or layers in place.

Related topics

Applying styles

Some styles include formatting for all three attributes (line, fill, and text); others are specific to one attribute. For example, one style may contain text formatting, such as the font, size, and color, as well as fill color and pattern, and line color and pattern. Another style may contain only text formatting.
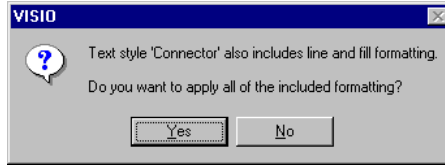
When you apply formatting to a shape by choosing the style from one of the style lists (for example, the Text style list) on the toolbars, if the style also includes line or fill formatting, Visio asks if you want to apply all of the style's formatting, rather than just the text formatting. Click Yes to apply all formatting to the shape. Click No to apply formatting for the single attribute you initially chose from the list.

To apply a style:

1. Select one or more shapes you want to format.

2. From the Line or Fill style lists on the Shape toolbar, or from the Text style list on the Text toolbar, choose the style you want to apply.

TIP You can apply styles to a shape by choosing Format > Style, then selecting the style you want from the lists. All the styles available in a drawing, both those pre-defined in a template and those you define yourself, are listed in the Style dialog box.

Related topics

Defining and editing styles

In the Define Styles dialog box, you can edit and rename existing styles, define your own styles from scratch, and delete styles you no longer need.

When you define or edit styles in a drawing file, the changes you make are available only in the current drawing. To make a style available across many future drawings, you can define or edit it in an existing template, or save the drawing file in which you created the style as a new template. The style will be included in every new drawing you create using that template.

When you edit or define a style, the colors you can choose are determined by the color palette in the template on which you base your drawing. All Visio templates use a default color palette. You can change the color palette a drawing uses, or modify the colors within the default color palette.

A Type a name for a new style or choose the name of the style you want to edit.

B Choose an existing style you want to base a new style on. Editing the base style changes the new style as well.

C Check the characteristics (text, line, fill) that your style includes, so that the style name will be displayed in the corresponding toolbar list.

D Click Text, Line, or Fill button to define those characteristics.

E Check to preserve selected shapes' special formatting—italic text, for example—even after you apply the style.

F Click to add a new style or change an existing one, then start creating or changing another style.

G If shapes were selected when you chose Define Styles, this button is labeled Apply. If no shapes were selected, it is labeled OK. Click to create and apply a new style and close the dialog box.
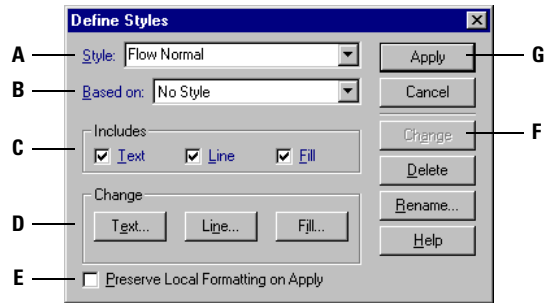
To define a new style:

1. Choose Format > Define Styles.
2. Type a name for the new style.
3. If you want to base the new style on an existing style, choose that style under Based On.
4. Under Includes, check the attributes that your style includes. A style can include formatting from any combination of the three attributes.
5. Under Change, click Text, Line, or Fill to change the settings for that attribute. Choose the settings you want for each attribute you included in step 4.
6. When the style contains the settings you want, do one of the following:

   Click Apply to add the new style, apply it to selected shapes, and close the dialog box.

   Click OK when no shapes are selected to add the new style and close the dialog box.

   Click Add to add the new style and continue working in the dialog box.

To edit a style:

1. Choose Format > Define Styles.
2. In the Style list, select the style you want to edit.
3. To rename the style, click Rename, type a new name for the style, then click OK.
4. To change the style settings, under Change, click the attributes you want to edit. When you finish editing the attributes, do one of the following:

   Click OK (when no shapes are selected) or Apply (when shapes are selected) to add the changes to the style and close the dialog box.

   Click Change to add the changes and continue working in the dialog box.

To delete a style:

1. Choose Format > Define Styles.

2. Choose the name of the style you want to delete.

3. Click Delete, then click OK.

Related topics

Copying styles from one drawing to another

If you want to transfer a style you created in one drawing to another drawing, you can copy and paste a shape to which the style is applied from the first drawing into the second.

NOTE If a style with the same name already exists in the second drawing, the style of the shape you copy does not replace the original style. Instead, it inherits the formatting of the style as it is defined in the second drawing. In this situation, if you want to copy the style, rename the style in either of the drawings before you begin.

To copy a style from one drawing to another:

1. Select a shape in the first drawing, and apply to it the style or styles you want to copy to the new drawing.

2. Choose Edit > Copy (or press Ctrl+C).

3. Open the new drawing.

4. Choose Edit > Paste (or press Ctrl+V).

   The shape is copied to the new drawing, along with the styles you assigned to it in the original drawing.

Related topics

Preserving individual shape formatting

You can apply special, or local, formatting to an individual shape even when the shape has a formatting style assigned. For example, if a computer in a network diagram has the Net-Normal style assigned, you can change the computer shape's text from normal to italic. If a Process shape in a flowchart has the Flow-Normal style assigned, you can change the fill color of the shape from white to blue.

If you apply a new style to a shape for which you've defined local formatting or edit the style already assigned to the shape, the style's attributes will replace any local formatting you've applied.

To prevent a style from overriding a shape's local formatting, you can choose to assign all of the style's attributes except those you assigned locally. Or you can preserve a shape's local formatting when you create or apply a style in the Define Styles and Style dialog boxes.

If you experiment with local formatting and then decide you preferred the formatting the shape originally displayed, you can revert to the styles associated with the shape's master.

To preserve local formatting when applying a style:

1. Select the shape, then choose Format > Style.

2. From the Text, Line, and Fill style lists, choose the styles you want to apply.

3. Check Preserve Local Formatting.

4. Click OK.

TIP In the Define Styles dialog box, the setting is called Choose Preserve Local Formatting on Apply.

To revert to a master's style:

1. Select the shape, then choose Format > Style.

2. Choose Use Master's Format from the Text, Line, or Fill style lists.

   The Use Master's Format item appears at the top of each style list; you may need to scroll up to see it.

3. Click OK.

Related topics

Creating new templates

You can create your own template to set up the most common stencils, styles, and page settings you use. Then you can base new drawings on this template and distribute the template to other Visio users in your organization.

The easiest way to create a template is to set up a drawing file the way you want, open the stencils you want, and then save the settings as a template (.vst) file. If you simply want to change some of the settings of an existing Visio template, you can base a drawing on that template, save it with a new name, and make your changes.

TIP If you want to preserve an original drawing file but also base a new template on it, you can open a copy of the drawing file. Choose File > Open. In the Open dialog box, select the drawing you want, then under Open, click Copy.

To create a template from a drawing file or an existing template:

1. Open the drawing or start a new drawing based on the template you want to modify.

2. Open any additional stencils you want to save with the template.

3. Modify drawing page settings and styles you want to use in future drawings you base on this template.

   For example, if you want to have a background page that displays your company logo, or a title block that contains fields such as the date a drawing is created and so on, create it and assign it to the foreground page.

4. Choose File > Save As, then do the following:

   For Save As Type, select Template (*.vst).

   For File Name, type a name for your template.

   For Save, make sure Workspace is checked.

   For Save in, select the folder in which you want to save the template.

   TIP If you want the template to display when you choose New from the File menu, save it in the Solutions folder or one of its subfolders.

5. Click Save.

Related topics

Organizing shapes with layers

About layers

You can use Visio layers to organize related shapes on a drawing page. A layer, in Visio, is a named category of shapes. Using layers, you can

- Show, hide, or lock shapes and guides on specific layers so you can edit certain layers without viewing or affecting others.
- Select and print shapes based on their layer assignments.
- Temporarily change the display color of all shapes on a layer to make them easier to identify.
- Assign a shape to more than one layer, as well as assign the member shapes of a group to different layers.
- Control whether shapes on a layer can be snapped to or glued to.
- Create reports based on data stored in shapes assigned to a particular layer.

For example, if you're drawing an office layout, you can assign walls, doors, and windows to one layer, electrical outlets to another layer, and furniture to a third layer. That way, when you plan the electrical system, you don't have to worry about accidentally rearranging the walls.

After locking the wall and electrical outlet layers, you can distribute the office layout to co-workers, who can arrange the furniture in their offices without disturbing the underlying office layout.

Some shapes, such as those in the Office Layout Template, are already assigned to pre-existing layers. If you want to use layers with shapes from other stencils, you need to create the layers and assign the shapes to them.

A shape can be assigned to multiple layers or no layers, and every page in a drawing can have a different set of layers.
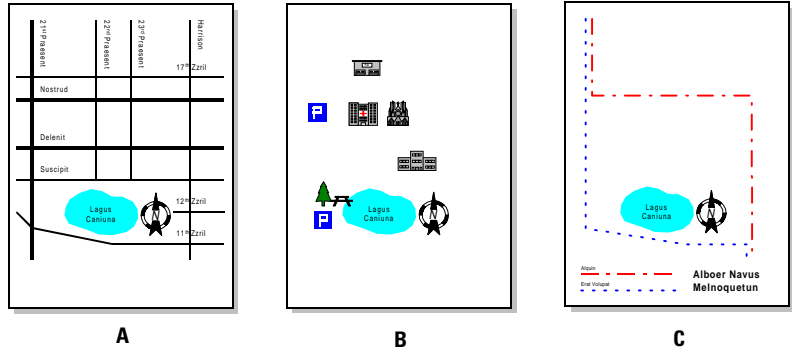
Shapes can belong to more than one layer. Here, the lake and compass shapes belong to the Streets layer (**A**), the Landmarks layer (**B**), and the Routes layer (**C**).

NOTE Visio layers do not determine how shapes appear on the page. The way shapes overlap is determined by their stacking order and whether or not there are backgrounds assigned to the page.

Related topics

Using layers on backgrounds

A background is a page that appears behind another page. It can have its own set of layers. Because a background can be shared by more than one page, but layers cannot, you may want to use layers on background pages. For example:

- In a drawing where the same map is used on multiple pages, you can put the map on the background and assign its parts to different layers, such as the Road layer or River layer. If you want to hide the roads on all the pages, you can then hide the background's Road layer.

- In a drawing with a title block on the background, you can assign it to a Revision History layer and then hide that layer if you don't want to print it.

- If the background includes information you don't want modified, such as your company logo and name, but you need to give the file to your client modifications, you can assign those shapes to a Corporate layer, lock it, then pass the file on to your client.
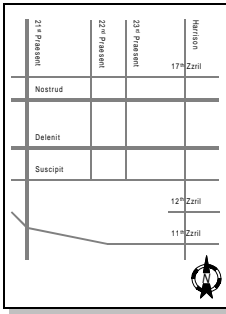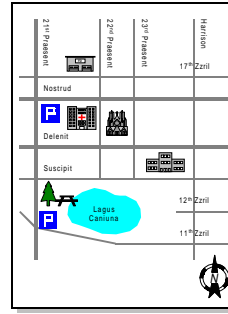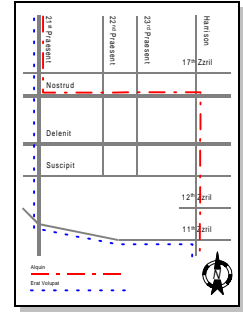
Background page elements (**A**) appear on the foreground pages to which they are assigned (**B** and **C**). When you open a Visio file, the drawing page on the screen is a foreground page. If you want to use backgrounds, you need to create them.

Related topics

Creating, removing, and renaming layers

Many Visio masters are already assigned to layers so, when you drop them on the page, the layer is added as well. You can create new layers to organize custom categories of shapes, then assign your shapes to those layers, as well as to the layers that Visio provides. For example, when you open the Office Layout Template, the masters are already assigned to the layers. As you drop instances of the masters, the layout layers are set up for you.

Creating layers

When you create a new layer, Visio adds it only to the current page, not to all pages in the file. Similarly, when you create a new page, you must define its layers; the new page does not inherit layers from the previous page. However, when you copy a shape with a layer assignment from one page to another, whether in the same drawing or between drawings, Visio adds the layer to the new page. If the page already has a layer with the same name, the shape is added to the existing layer.

To create a layer:

1. Choose View > Layer Properties.

2. Click New.

3. In the New Layer dialog box, type a name for the layer, then click OK.

4. In the Layer Properties dialog box, click to place a checkmark below properties you want the layer to have, then click OK.

Removing and renaming layers

When you no longer need a layer, you can remove it. If you remove a layer, all shapes assigned only to that layer are removed as well. If you don't want to remove the shapes along with the layer, change or remove each shape's layer assignment before you remove the layer.

When you rename a layer, only the layer's name is changed—the shapes on the layer are not removed or changed.

TIP To see how many shapes are assigned to a layer, choose View > Layer Properties, then click the number button (♯) in the Layer Properties dialog box.

To remove a layer:

1. Choose View > Layer Properties.
2. Select the layer you want to delete, then click Remove.
3. Click OK.

TIP To delete all unused layers, check Remove Unreferenced Layers.

To rename a layer:

1. Choose View > Layer Properties.
2. Select the layer you want to rename, then click Rename.
3. For Layer Name, type a new name, then click OK.
4. Click OK.

Related topics

Assigning shapes to layers

You can assign shapes to one or more layers by selecting the shapes, then choosing which layer you want to assign them to. For example, you can add walls and furniture, then assign them to corresponding layers.

When you drop an instance of a master that is pre-assigned to a layer, the instance inherits the master's layer assignments. If a layer of that name does not already exist on the drawing page, dropping the instance adds the layer. If you have designated an active layer for the page, that instance is assigned only to the layer it inherited from its master shape, although you can later assign it to the active layer or to another layer.

TIP You can check Preserve Group Member Layers to specify that individual shapes in a group retain their current layer assignments. For example, you might assign a desk to the furniture layer and a computer to the electronics layer, then group them. If you then assign the group to the den layer, the desk and computer retain their previous layer assignments as well. When this option is unchecked, when you assign a group to a layer, all of the group members become members of the new layer. Their previous layer assignments are canceled.
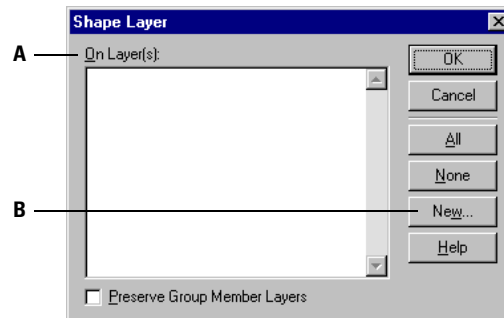
A Assigns the selected shape to one or more layers. You can assign a shape to multiple layers.
B Opens the New Layer box, in which you can type a name to create a new layer.

To assign a shape to a layer:

1. Select the shape.

    If the shape is part of a group, click to select the group (indicated by green selection handles), then click to subselect the shape in the group (indicated by gray selection handles).

2. Choose View > Shape Layer.

3. Choose the layer to which you want to assign the shape, then click OK.

TIP To assign a shape to more than one layer, press Ctrl to choose multiple layers.

To assign a group to a layer:

1. Select the group.

2. Choose View > Shape Layer.

3. Click the layer to which you want to assign the group, check Preserve Group Member Layers, then click OK.

Related topics

Making a layer active

When you create a shape that doesn't already have a pre-defined layer assignment, it is automatically assigned to the active layer. You can change the active layer as you work to make sure that new shapes are added to the appropriate layer. For example, if you are going to add electrical wiring shapes to a drawing of an office layout, you can make the electrical layer active. All the shapes you add from then on are assigned to the electrical layer. When you begin to add windows, you can designate the wall layer as the active layer.

In a drawing with many shapes and layers, you may find it more efficient to designate one or more active layers, so that all shapes you subsequently draw or drop are automatically assigned to those layers.

To designate a layer as active:

1. Choose View > Layer Properties.

2. Click in the Active column to add a check for each layer you want to make active.

3. Click OK.

TIP If a layer is locked against editing, you cannot make it the active layer.

Related topics

Controlling shape behavior using layers

After you've assigned shapes to a layer, you can control the behavior and appearance of the shapes as a group. You can

- Select all shapes on a layer.
- Show or hide the shapes on a layer. For example, in a garden diagram, you can view the layers that contain the flowerbed and the spring-blooming plants, and hide the layers that contain summer- and fall-blooming plants, to see what will be blooming in the spring.
- Lock shapes on a layer, so that you cannot select, move, or edit the shapes on the locked layer. To identify these shapes, you can also temporarily change their color by setting color property for the locked layer. You cannot add shapes to a locked layer.
- Specify whether other shapes can snap or glue to the shapes assigned to a layer. If a shape is on a layer that has Snap or Glue unchecked, you can still snap or glue it to other shapes, but you can't snap or glue other shapes to it.
- Use color to highlight shapes on a layer. For example, in an office layout you can create a layer for each department, then assign each layer a unique color so that, at a glance, you can see which department owns different equipment.
- Print only the shapes assigned to particular layers.

TIP The color you assign to shapes on a layer temporarily overrides each shape's original color. If you turn off the layer color, each shape returns to its original color. If you have assigned a shape to more than one layer, the shape will not use a layer color, but instead will appear in its original color. Layer colors are temporary and intended for display only, but they can affect printed output.

To select all the shapes on a layer:

1. Choose Edit > Select Special.
2. For Selection By, click Layer, then choose the layer with the shapes you want to select. Or, choose No Layer to select shapes that are not assigned to any layer. To choose multiple layers, press Ctrl, then click the layers you want.
3. Click OK.

To control shapes on layers:

1. Choose View > Layer Properties.

2. Check the options you want. Uncheck an option to deactivate it for that layer.

3. Click OK.
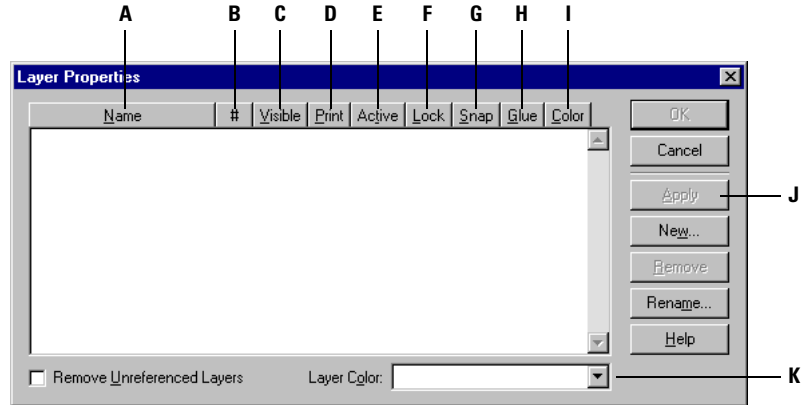
A Specifies the name of the layers in the diagram. Clicking this button opens the Rename Layer dialog box, in which you can change the name of the selected layer.

B Displays the number of shapes assigned to each layer.

C Specifies whether the shapes on a layer are visible or hidden. Check to show the layer and uncheck to hide the layer.

D Specifies whether to print the shapes on a layer. Check to have the layer print; uncheck this option so that the layer does not print.

E Specifies the active layer to which shapes without a pre-assigned layer are automatically assigned. Check to make the layer active or uncheck to deactivate the layer. The active layer cannot be locked.

F Prevents shapes on a layer from being selected or altered. Check to lock the layer or uncheck to unlock the layer. If a layer is locked, it cannot be the active layer.

G Specifies whether other shapes can snap to shapes assigned to the layer. A shape on a layer that has Snap unchecked can still snap to other shapes, but other shapes cannot snap to it.

H Specifies whether other shapes can glue to shapes assigned to the layer. A shape on a layer that has Glue unchecked can still glue to other shapes, but other shapes cannot glue to it.

I Specifies that all shapes assigned to the layer appear in the specified color; this option does not permanently change the shape colors. Check to override each shape's original color in favor of the layer color. Uncheck to return shapes to their original colors.

J Applies the current settings to the drawing page without closing the dialog box.

K Adds color to a layer so that all objects assigned to the selected layer appear in the layer color.

Related topics

About customizing shape behavior .... *Visio Help*
Controlling how shapes display onscreen .... *Visio Help*

Laying out shapes automatically

About automatic layout

With certain types of connected drawings, such as flowcharts and network diagrams, you can use the Lay Out Shapes command to have Visio position, then reposition, shapes. Having Visio reposition shapes can help you revise large drawings more quickly than using the pointer tool to select and drag each one to the new location. For example, if you're updating a large flowchart to include a new process, you can add and connect the shapes that make up the process, then use the Lay Out Shapes command to have Visio lay out the updated drawing for you.

Preparing for automatic layout

For best results with automatic layout, use the following guidelines when you create connected drawings:

- Connect shapes using connectors that Visio can route.

  Most connectors are routable. A routable connector can detect certain 2-D shapes that lie in its path from one shape to another, and change its route to avoid crossing through them. Some connectors that are designed for a specific purpose, such as the tree and crow's-foot connectors, or control-handle connectors that you can drag out directly from other shapes, are not routable.

- Set all 2-D shapes so that connectors can detect them.

  Routable connectors can detect and route around only the shapes set as "placeable." To quickly set all 2-D shapes as placeable, select them all (shift+click to select multiple shapes), then choose Format > Behavior and, for Layout Behavior, select Layout And Route Around.
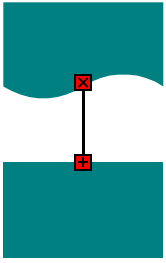
In this diagram, the begin point is connected to the top shape, and the end point is connected to the bottom shape. If the points are reversed in this example, Visio will lay out the shapes in the opposite order.

- Orient connectors so that begin and end points direct the flow of your drawing.

  Visio determines where to position shapes based on begin and end point locations. A connector may have an arrow on one or both ends but the direction the arrow points doesn't necessarily indicate the begin and end point locations.

- Ensure that begin and end points of connectors are properly glued to other shapes. When you select a glued connector its begin and end points turn red.

Lay Out Shapes works best with the flowchart, network diagramming, organization chart, or other typical connected-drawing types. If you try to use automatic layout with a drawing that you did not create with these shapes, an alert appears to let you know that the results may not look as you expect. You can choose to continue or cancel the layout process. If you continue and are not satisfied with the results, you can use the Undo command to undo it (choose Edit > Undo Lay Out Shapes).

Related topics

Setting layout style, depth, and routing

When you have Visio lay out a drawing, you can specify the style of layout you want, as well as the layout depth and the connector routing style.

Layout style

You can choose one of three styles: Top To Bottom, Left To Right, and Radial. Choose Top To Bottom or Left To Right for directed drawings, such as organization charts and process flow diagrams. Choose Radial for undirected drawings such as some types of network diagrams.

Depth

The Depth setting determines the number of levels of the drawing Visio looks at before creating the layout. When choosing depth settings, Shallow means a shallow layout. That is, in a top-to-bottom organization chart, a shallow layout requires more horizontal space than a deep layout.

In addition, depth settings refer to the type of layout you want. If you set the depth to Shallow, Visio checks more levels of the drawing than it does if you set the depth to Deep. The more levels Visio checks, the better it can determine, in a top-to-bottom chart, how much space to leave between top-level shapes so that shapes in lower levels can fit on the same horizontal line. In this case "shallow" refers to the layout, because it requires more horizontal and less vertical space than it would if you had set the depth to Deep.

Whatever the Depth setting, the number of levels Visio looks at depends upon the style and complexity of the drawing you're working on. You may want to try different depth settings on the same drawing to find the one that produces the result that works best for your drawing.

Routing style

The routing style determines the path automatic layout takes to connect 2-D shapes. You can choose one of two routing styles: Flowchart and Right Angle. The Flowchart routing style uses both straight and right-angle connectors; the Right Angle routing style uses only right-angle connectors.
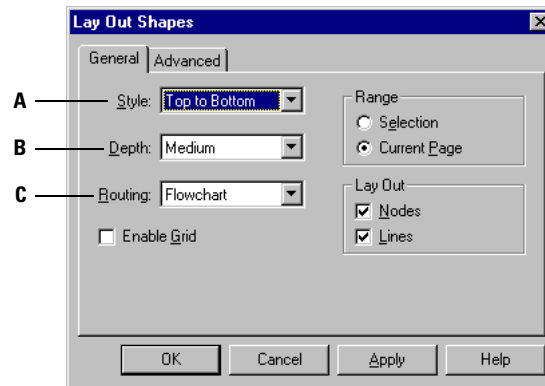
A Choose the layout style.
B Choose the depth.
C Choose the connector routing style.

To lay out shapes and change layout style, depth, and connector-routing style:

1. Display or create the drawing you want to lay out.

2. Choose Tools > Lay Out Shapes.

3. Select the layout style, the depth, and the routing style you want, then click OK.

Related topics

Customizing shape spacing and connector routing settings
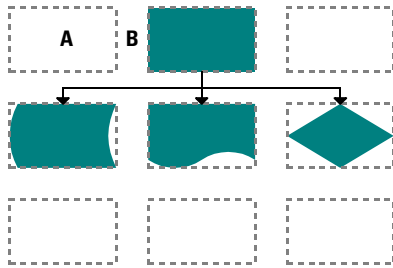
When you enable the grid, shapes are placed within the blocks (**A**) and connectors are routed through avenues (**B**).
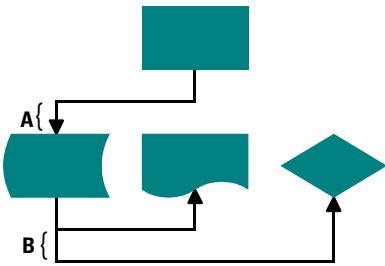
To make connections easier to see in a large drawing, you can increase the amount of spacing between connectors or between shapes and connectors.

A Line to node spacing
B Line to line spacing

When you use automatic layout, you can fine-tune the way Visio places shapes (or "nodes") and connectors (or "lines"). You can

- Change shapes' placement settings to affect the way Visio routes connectors between shapes.
- Change the minimum amount of space you want between shapes and connectors, and between connectors' parallel segments.

The settings on the Advanced tab of the Lay Out Shapes dialog box are based on the layout grid. You turn on the grid by checking the Enable Grid box on the General tab. The layout grid is set up with blocks and avenues, like a city map. On the Advanced tab, you can set the Block Size to the size of the shapes in your drawing, and the Avenue size to the amount of space you want between them.

Note that the grid you create here serves as an internal guide only—it does not correspond to the drawing page grid, and does not appear on the drawing page when you enable it.

Avoid using the grid if your drawing contains shapes of various sizes, particularly shapes that exceed the size of the grid blocks. Visio can position these shapes more precisely when they do not need to fit within a fixed grid block.

To customize routing and grid options:

1. Choose Tools > Lay Out Shapes to open the dialog box.
2. Click General to display the General tab, then check Enable Grid.
3. Click Advanced, and on the Advanced tab:

   Under Line To Line Spacing, set the minimum amount of space you want between connectors' parallel segments.

   Under Line To Node Spacing, set the minimum amount of space you want between connectors and shapes.

   Under Block Size, type values that match the size of the shapes in your drawing.

   Under Avenue size, type the minimum amount of space you want between the shapes (this should be at least twice the values of the Line To Node settings).

4. When you've finished fine-tuning the settings on the Advanced tab, click OK to close the dialog box and create the automatic layout, or click Apply to create the automatic layout without closing the dialog box.

   TIP If you are not satisfied with the layout, choose Edit > Undo Lay Out Shapes (or press Ctrl+Z).

Related topics

Positioning shapes with precision

About positioning shapes precisely

When precision counts, you can use the Visio rulers, guides, grid, and alignment and positioning tools to draw and place shapes accurately. By default, shapes snap, or pull, to ruler subdivisions, guides, guide points, grid lines, and other shapes, so lining them up is quick and easy. Which element you snap shapes to depends on what you want to do. For example, to position shapes at regular intervals, you can snap them to the grid. To align shapes, snap them to a guide.

Methods for snapping shapes into position

Position for shape	Snap to
Align several shapes	Guides
Align shapes by their corners	Guide points
Position shapes equidistant from one another	Grid, ruler subdivisions, or guides
Position 1-D shapes against 2-D shapes	Shape geometry, handles, vertices, or connection points
Position 2-D shapes against one another	Shape's alignment box
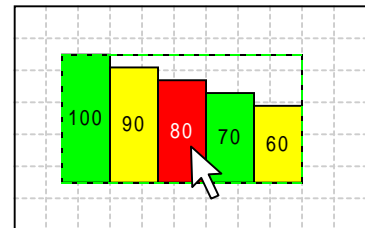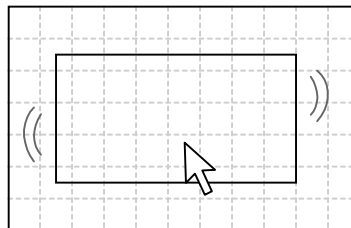
To place a shape more accurately, pause while dragging its line or outline (shown on the left), without releasing the mouse button. The line or outline changes to the shape itself (shown on the right).
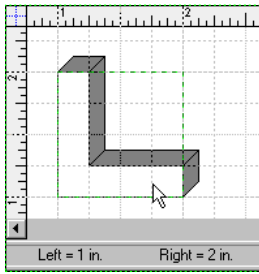
When you drag shapes, guides, or guide points on the drawing page, precise coordinates for the object's position appear in the status bar at the bottom of the Visio window. On the rulers, faint lines appear and track the shape as you move it to help you position the shape precisely.

Other ways you can position shapes include the following:

- The Align Shapes command aligns several shapes to one shape.
- The Size & Position command positions shapes using numerical *x, y* coordinates.
- The position information that appears on the status bar when you select a shape. This information changes as you drag the shape.

Related topics

Snapping shapes for automatic alignment

You can rely on snap behavior to position and align shapes exactly. Snapping pulls shapes to one another or to ruler subdivisions, grid lines, guides, or guide points so you can control placement and alignment. You can control what types of objects shapes snap to and the snap strength, which is the amount of pull that an object exerts.
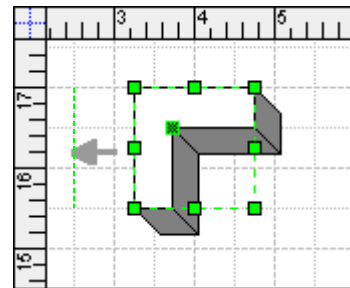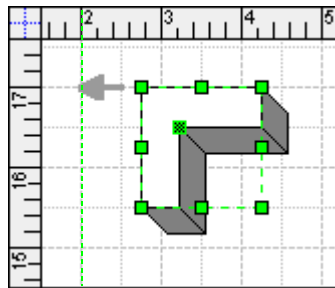
By default, shapes snap to both ruler subdivisions and grid lines. To snap shapes more easily to ruler subdivisions, turn snapping to grid lines off.

TIP You may not always want to snap shapes. For example, by turning off snapping, you may find it easier to draw a smooth freeform curve.

Setting snap options

The snap settings you choose apply to all shapes in the current drawing. When you set snap options, set only the options you need. For example, if you want to snap to guides, you do not need to set the Grid option.

To set how shapes snap:

1. Choose Tools > Snap & Glue.

2. In the Snap To section of the dialog box, check the options you want.

   The Ruler Subdivisions, Grid, and Guides options are useful for positioning and aligning shapes.

   The Shape Handles (selection handles), Shape Vertices, and Connection Points options are useful for gluing shapes together.

3. Check the Snap option in the Currently Active section, then click OK.

TIP To place shapes as precisely as possible, set the snap strength to a high setting, press Ctrl+Shift and click the left mouse button to zoom into the drawing, then move shapes into place.
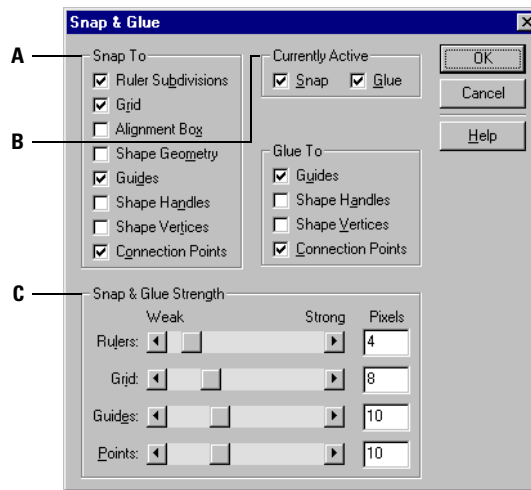
A Check to determine what to snap to.

B Check to turn on Snap or Glue. Uncheck to turn them off.

C Move a slider to change the amount of pull an option exerts, measured in pixels. When you increase the snap strength, Visio pulls a shape toward an item from farther away. "Points" refers to selection handles, vertices, and connection points.

Related topics

Creating guides and guide points

You can use guides and guide points when you want to position shapes precisely or align several shapes and keep them in the same position even when you move them. Guides are useful in ways rulers and grid lines are not. For example:

- You can rotate existing guides by rotating the entire page or by rotating a single selected guide using the Size & Position command.
- You can glue shapes to guides so that when you move the guides the shapes move too.
- You can place guides anywhere on the page and use the Snap & Glue command to make shapes snap to the guides.
- Guides don't print.
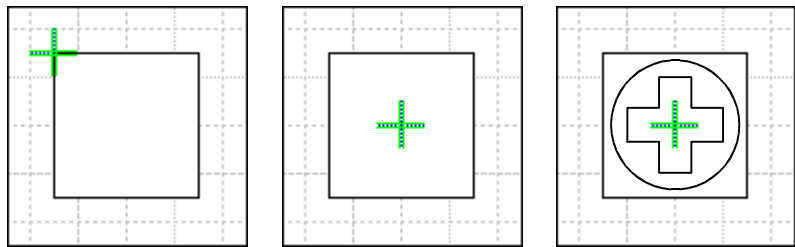
Guide points are two short, crossed guides that you can use to align shapes at their corners or to center shapes on top of one another.

Methods for creating guides and guide points

To	Do This
Prepare to create guides and guide points	On the View menu, check both Guides and Rulers.
Place a guide on the drawing page	Drag a guide from the horizontal or vertical ruler onto the drawing page, then release the mouse button.
Place a guide point on the drawing page	Drag from the intersection of the two rulers onto the drawing page, then release the mouse button.
Delete a guide or guide point	Click to select the guide or guide point you want to delete. Press the Delete key, or choose Edit > Clear.
Rotate a guide	Select the guide, then choose Shape > Size & Position. In the Size & Position dialog box, select Rotated, then type values for X, Y, and Angle. The *x, y* coordinates and angle are relative to the zero point. Negative values for Angle rotate the guide counterclockwise; positive values rotate the guide clockwise.

Related topics

Controlling grid spacing and origin

Each drawing page is crisscrossed by grid lines like those on traditional graph paper. You can control the grid spacing, set whether the grid is variable or fixed, or change the grid origin. You can even set spacing separately for the horizontal and vertical grid lines. The grid helps you position shapes visually. You can also snap shapes to the grid.

The intervals of the grid correspond to the unit of measure you set in the Options dialog box. You set the size of the intervals in the Ruler & Grid dialog box and you type settings for the horizontal and vertical grid lines.

NOTE If you rotate your page, the grid doesn't rotate with it, but stays parallel to the rulers.

A Specifies how far apart the grid lines are. You can choose Fine, Normal, Coarse, or Fixed. Fine, Normal, and Coarse set the grid to a variable grid; the grid spacing changes as you zoom in and out. Fixed sets the grid to a fixed grid; if you zoom in or out, the spacing between grid lines does not change.

B For Fine, Normal, or Coarse, specifies the minimum grid lines. For Fixed, specifies how far apart the grid lines are.

C Specifies where to place the grid origin. For example, you could move the grid in increments different from the ruler to align the grid with a shape or part of the diagram. By default, the grid origin is in the lower-left corner.
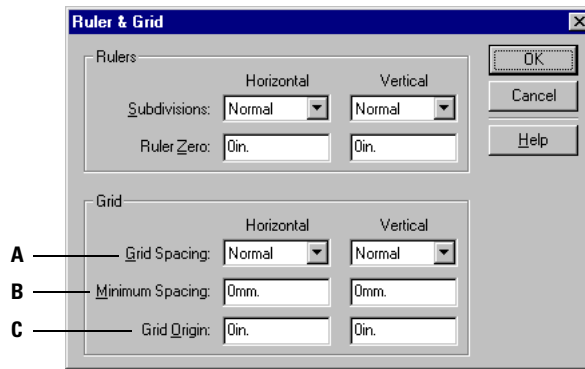
Using a variable grid

By default, Visio uses a "variable" grid. Variable grid lines change depending on the magnification at which you are viewing your drawing. If you zoom in on your drawing, grid lines may be closer together; if you zoom out, they may be further apart. (You can check this by changing the magnification and then looking at how the grid lines line up with the rulers.) Visio determines the best grid spacing for the view. Variable grids are useful when you want to zoom in to align something precisely.

To set grid spacing between lines for a variable grid:

1. Choose Tools > Ruler & Grid.
2. In the Grid Spacing Horizontal and Vertical list boxes, select Fine, Normal, or Coarse. Fine is the smallest grid spacing and Coarse is the largest.
3. Click OK.

To hide the grid:

• Choose View > Grid to uncheck the Grid command.

Using a fixed grid

For some drawings, such as space plans and engineering diagrams, you may want to set a fixed grid, so that grid lines stay the same distance apart regardless of magnification. For example, you can set the grid to match the size of ceiling tiles. If you set a fixed grid for tiles that are 40cm by 40cm, you'll notice that the grid lines always match this distance on the ruler, regardless of the magnification.

To set a fixed grid:

1. Choose Tools > Ruler & Grid.

2. In the Grid Spacing Horizontal and Vertical list boxes, select Fixed.

3. For Minimum Spacing, type the spacing you want for the fixed grid, then click OK.

To change the point where a fixed grid originates:

1. Choose Tools > Ruler & Grid.

2. For Grid Origin, enter *x*- (horizontal) and *y*- (vertical) coordinates for the point from which you want the grid to originate, then click OK.

Related topics

Setting ruler units and the zero point

Each drawing window has vertical and horizontal rulers that show measurements at the scale of the drawing. The intervals of the ruler correspond to the unit of measure you set in the Options dialog box. You can specify both the units that appear on the ruler and where the zero point, or starting point, for both rulers is located in the Ruler & Grid dialog box.

The zero point is typically in the lower-left corner of the page, but sometimes it's helpful to move it to make it easier to measure the distances in a specific drawing. For example, you might want the zero point to line up with a wall in a floor plan. When you move the zero point on a ruler, the grid origin does not move with it so the grid and ruler increments might become misaligned, making it difficult to snap to ruler increments. You can adjust the grid to match or turn the grid off.

If you rotate your page or a guide, Visio uses the zero point as the center of the rotation.
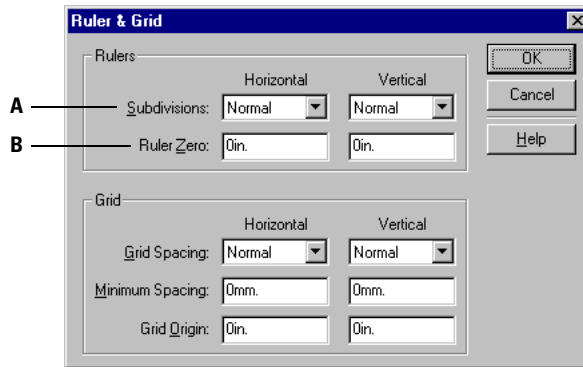
A Specifies how many tick marks are on the vertical or horizontal ruler. You can choose Fine, Normal, or Coarse.

B Specifies the location of zero on the horizontal and vertical ruler. By default, the horizontal ruler's zero point is the top-left corner of the page, and the vertical ruler's zero point is the bottom-left corner of the page.

Methods for setting rulers

To	Do this
Set ruler measurement units	Choose File > Page Setup, then click the Page Properties tab. Under Measurement Units, choose the units you want, then click OK.
Change the position of the zero point on both rulers	Hold down the Ctrl key, then drag from the intersection of the two rulers to where you want the new zero point.
Change the position of the zero point on one ruler	Hold down the Ctrl key, then drag from the other ruler.
Return the zero point to the lower-left corner of the page	Double-click the intersection of the two rulers.
Change ruler subdivisions	Choose Tools > Ruler & Grid. Under Rulers, choose the kind of subdivisions you want.
Hide the rulers	Choose View > Rulers to uncheck the Rulers options. To create guides and guide points, rulers must be visible.

Related topics

Using guides to reposition multiple shapes

When you need to precisely align several shapes and keep them in the same position even when you move them, guides and guide points are very useful. You can glue shapes to guides and guide points so that when you move the guide the shapes move with it.

NOTE You can glue shapes to rotated guides, but if you rotate a guide after a shape is glued to it (whether the guide was rotated when you glued the shape to it or not) the glue breaks.

Methods for using guides to reposition multiple shapes

To	Do This
Align shapes with a guide or guide point	Drag shapes until their selection handles, endpoints, or connection points align with the guide or guide point.
Glue a 1-D shape to a guide	Make sure the glue options are set appropriately in the Snap & Glue dialog box. Drag one of the shape's endpoints to the place on the guide where you want to glue it. When the shape is successfully glued, the endpoint turns red.
Glue a 2-D shape to a guide	Drag the shape to the place on the guide where you want to glue it. When the shape is successfully glued, the selection handles on the glued part of the shape turn red.

Related topics

Specifying exact size and position for shapes and guides

With the Shape > Size & Position command, you can

- Set the position and degree of rotation of shapes and guides on the page, as well as the dimensions of shapes, using precise numerical values.
- Obtain precise size and position information about selected shapes or guides.
- Resize and move one shape or several shapes at once.

For a 1-D shape, use the Size & Position command to

- Resize a shape vertically, horizontally, or in both directions.
- Change the position of a shape's begin point while keeping the end point stationary.
- Change the position of a shape's end point while keeping the begin point stationary.
- Change the height or angle of rotation of a shape.

A Click to displays the shape's begin and end points and its height in the Parameters section.

B Click to display the shape's begin point, angle of rotation, length, and height in the Parameters section. Visio calculates the end point.

C Click to display the shape's end point, angle of rotation, length, and height in the Parameters section. Visio calculates the begin point.

D The values you type in this section depend on what you click in the Show section. For example, if you click Begin And End Points, then you can type x, y coordinates for the shape's begin and end points, as well as its height.
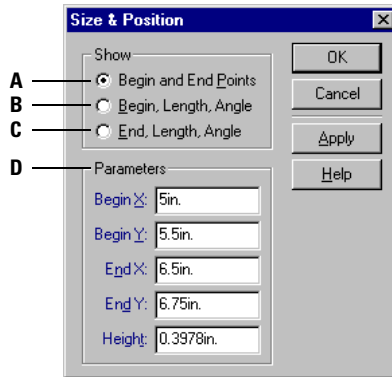
In the Size & Position dialog box for 1-D shapes, you enter values specific to 1-D shapes, such as begin and end points.

For a 2-D shape, use the Size & Position command to

- Change the width and height of a shape.
- Change a shape's angle of rotation.
- Flip a shape vertically or horizontally.
- Move a shape by changing the *x*- and *y*-coordinates of its pin, or point of reference.
- Change the position of a shape's pin on the shape.

A Type the width of the shape.

B Type the height of the shape.

C Type the shape's angle of rotation.

D Check to flip the shape horizontally.

E Check to flip the shape vertically.

F Move the shape's pin in relation to the shape and the page. Click a section to change the pin location. The pin is the point of reference used when you position or rotate the shape.

G Type the position of the *y*-coordinate of the shape's pin in relation to the page. Enter a new value to change the vertical position of the shape on the page.

H Type the position of the *x*-coordinate of the shape's local pin (center of rotation) in relation to the page. Enter a new value to change the horizontal position of the shape on the page.
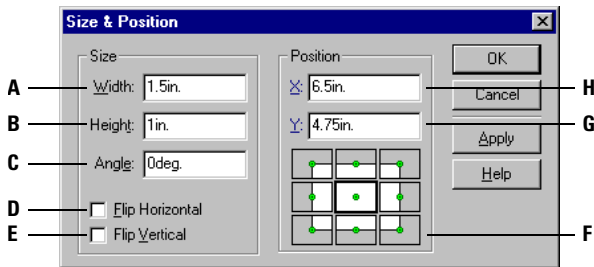
In the Size & Position dialog box for 2-D shapes, you enter values specific to 2-D shapes, such as height, width, and pin location.

For a guide or guide point, use the Size & Position command to set the orientation and position.

A Click to change the selected guide to a guide point.

B Click to make the selected guide horizontal.

C Click to make the selected guide vertical.

D Click to rotate the selected guide.

E Type the *x*-coordinate of the guide.

F Type the *y*-coordinate of the guide.

G Type the angle of rotation for a rotated guide.
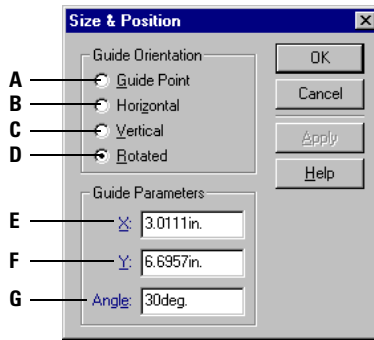
In the Size & Position dialog box for guides, you enter values specific to guides or guide points, such as orientation.

To set a 1-D shape's size or position precisely:

1. Select the shape.

2. Choose Shape > Size & Position, or click the status bar.

3. In the Show section, choose one of the following options:

   To change the position of the shape's begin and end points or to change the shape's height, choose Begin And End Points (the default option).

   To change the position of the shape's begin point (the end point remains stationary) or to change the length, angle of rotation, or height of the shape, choose Begin, Length, Angle.

   To change the position of the shape's end point (the begin point remains stationary) or to change the length, angle of rotation, or height of the shape, choose End, Length, Angle.

4. In the Parameters section, specify values for any or all of the options:

   If you chose Begin And End Points in the Show section, specify a value in the Begin X or End X box to resize the shape horizontally; specify a value in the Begin Y or End Y box to resize the shape vertically; or specify a value in the Height box to change the shape's height.

   If you chose Begin, Length, Angle in the Show section, specify a value in the Begin X or Begin Y box to change the position of the shape's begin point, or specify a value in the Length, Angle, or Height box to change the size and position of the shape.

If you chose End, Length, Angle in the Show section, specify a value in the End X or End Y box to change the position of the shape's end point, or specify a value in the Length, Angle, or Height box to change the size and position of the shape.

5. Click Apply to see the results before you close the dialog box, or click OK to apply the changes and close the dialog box.

TIP To move a shape without resizing or rotating it, change the values in the Begin X and End X or Begin Y and End Y boxes by the same amount. For example, to move a shape down one inch, decrease the values of Begin Y and End Y by one inch each. To resize and rotate the shape at the same time, enter new values for both the *x*- and *y*-coordinates.

To set a 2-D shape's size or orientation precisely:

1. Select the shape.
2. Choose Shape > Size & Position, or click the status bar.
3. In the Size section, specify values for the shape's width, height, and angle of rotation. You can also check options to flip the shape vertically or horizontally.
4. Click Apply to see the results without closing the dialog box, or click OK to apply the changes and close the dialog box.

To set a 2-D shape's position or reference point precisely:

1. Select the shape.
2. Choose Shape > Size & Position, or click the status bar.
3. To move the shape, specify values in the X and Y boxes in the Position section.
4. To change the shape's reference point, or pin, click the grid section on the shape diagram that corresponds to the point to which you want to move the pin.

   The X and Y coordinates in the dialog box indicate the location of the shape's pin on the drawing page. Therefore, when you change the location of the pin on the shape, the shape's position on the drawing page changes.
5. Click Apply to see the results without closing the dialog box, or click OK to apply the changes and close the dialog box.

To set a guide's position or rotation precisely:

1. Select the guide or guide point.

2. Choose Shape > Size & Position, or click the status bar.

3. To change the orientation of a guide, choose Horizontal, Vertical, or Rotated in the Guide Orientation section.

4. To move the guide or guide point, specify values in the X or Y boxes (or both) in the Guide Parameters section.

5. To set the angle of rotation for a rotated guide, type a value for Angle in the Guide Parameters section.

6. Click Apply to see the results without closing the dialog box, or click OK to apply the changes and close the dialog box.

To set the size and position of multiple shapes precisely:

1. Select all of the shapes you want to size.

2. Choose Shape > Size & Position, or click the status bar.

3. Type values or select options that you want, then click OK.

4. Click Apply to see the results without closing the dialog box, or click OK to apply the changes and close the dialog box.

Related topics

Aligning and distributing shapes

As you move shapes, you can align them with ruler intervals and grid lines. You can also

- Align shapes to other shapes. You can align the tops, bottoms, left sides, right sides, or centers of shapes.

- Create guides or guide points and align shapes to them. When shapes are glued to a guide, the aligned shapes move with the guide.

- Distribute three or more shapes to create an equal distance between the ends or centers of the shapes.

When you're aligning shapes to one another, the primary shape, indicated by green handles, is the shape to which other shapes align. You can establish a certain shape as primary by selecting that shape first, then Shift+clicking to select the other shapes you want to align to the primary one. If you drag a selection net around several shapes, the top shape in the stacking order is the primary shape.

Aligning shapes

When you move the shapes, faint lines on the vertical and horizontal rulers indicate where you're moving the shapes. If you don't see the rulers, make sure Rulers is checked in the View menu.

By default, the ruler zero point is at the lower-left corner of the drawing page. Sometimes it's useful to change the position of the zero point. For example, you might want to measure the distances between shapes that aren't near the current zero point.

To align shapes to a primary shape:

1. Select the shape to which you want to align other shapes, then Shift+click to select the shapes you want to align.

2. Choose Tools > Align Shapes.

   NOTE You can also use one of the six align shapes buttons on the Shape toolbar: align left (▯), align center (▮), align right (▯), align top (▮▮▮), align middle (▮▮▮), or align bottom (▮▮▮).

3. Select the alignment options you want.

   Each alignment option is represented by an illustration. Choose an Up/Down Alignment or a Left/Right Alignment option, or one of each. To cancel the selection of either Alignment option, click the red X in that section.

4. To create a guide and glue the shapes to it, check Create Guide And Glue Shapes To It.

   If you choose this option, you can move all the shapes and maintain their alignment by selecting and moving the guide.

5. Click OK.

To align shapes to a guide:

1. Drag a guide from a ruler onto the drawing page. The guide appears as a green line (it appears as a blue line when deselected).

2. Choose Tools > Snap & Glue to make sure that Glue is checked under Currently Active and Guides is checked under Glue To, then click OK.

TIP You can automatically create a guide and glue shapes to it using the Align Shapes command. Simply check Create Guide And Glue Shapes To It in the Align Shapes dialog box.

To align shapes to a guide point:

1. Point to the crossbar at the intersection of the two rulers, then drag to where you want the guide point.

   The guide point appears as two blue crossed lines.

2. Position shapes you want to align with their centers, selection handles (for 2-D shapes), or endpoints (for 1-D shapes) on the guide point.

Distributing shapes

You can distribute three or more shapes to create an equal distance between the ends or centers of the shapes. When you distribute shapes vertically, the top and bottom shapes in the selection define the boundaries of the distribution. For horizontal distribution, the boundaries are defined by the leftmost and rightmost shapes.

To distribute shapes using the Distribute Shapes command:

1. Shift+click to select three or more shapes.

2. Choose Tools > Distribute Shapes.

   You can also use one of four Distribute Shapes buttons on the Shape toolbar: distribute centers horizontal (⬚), distribute horizontal spacing (⬚), distribute centers vertical (⬚), or distribute vertical spacing (⬚).

3. Choose a distribution option.

4. To add guides and glue the shapes to them, check Create Guides And Glue Shapes To Them.

   If you choose this option, you can move an outermost guide to redistribute all the shapes.

5. Click OK.

   Visio distributes the shapes evenly between the two outermost shapes.

To distribute shapes using evenly spaced guides:

1. Drag the first guide from the appropriate ruler.

2. To create the second guide, hold down the Ctrl key and drag from the first guide to where you want the second guide.

3. Press F4 to create additional guides.

4. Glue shapes to the guides so they're distributed the way you want.

TIP You can create a guide and glue shapes to it using the Distribute Shapes command. Check Create Guides And Glue Shapes To Them in the Distribute Shapes dialog box.

Related topics

Measuring shapes and setting scales

About measuring and scaling in drawings

When the drawings you create represent real-world objects that are larger than the paper size, such as a potted plant or a grand piano, you need to draw to scale. For example, 1mm on the drawing page of an office layout might represent 50mm of the actual office.

In Visio, the units of measure that appear on the rulers, or "drawing units," are sizes in the real world. In the example above, 50mm is the drawing unit.

"Page units" are sizes on the printed page—1mm in the office layout example. The ratio of page units to drawing units is the "drawing scale."

When you start a drawing by opening a template, the drawing scale and units of measure are already set up for you. Some templates, such as the Basic Flowchart Template, have no drawing scale, because you use them to create abstract drawings that don't represent actual objects in the real world.

You can change the units of measure and the drawing scale settings to accommodate the particular type and size of drawing you want to create.

Related topics

Setting drawing scales

Whenever you need to recreate the exact spatial relationships of very small or very large objects in the space of a drawing page, you need to set a drawing scale.

You can set a drawing scale in any drawing. Some templates, such as the Office Layout Template, open with a drawing scale already set. If you want to work with a different drawing scale, you can change the setting.

When you set a drawing scale, keep the following points in mind:

- Changing the scale of a drawing page does not change any background pages assigned to it, so you must set their scale separately if you want the foreground and background pages to match. This feature allows a single drawing to contain multiple scales.

- Most masters are designed for drawings with a scale of 1:1. Visio adjusts an instance of a master automatically if its drawing scale is more than eight times larger or smaller than the drawing scale of the page. If the scales differ less, Visio doesn't adjust the shape.
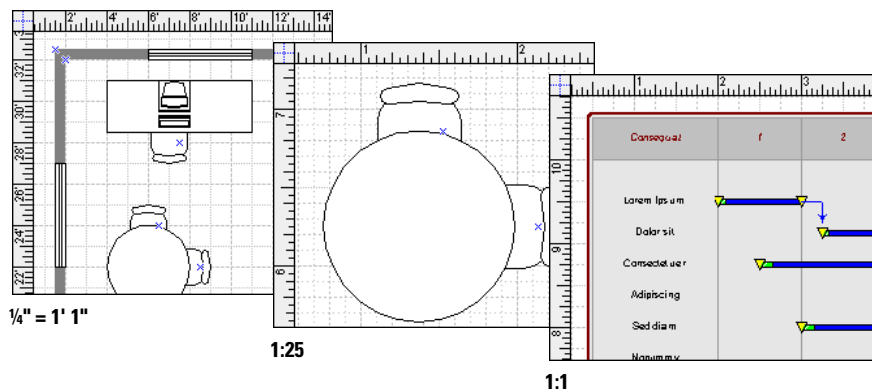
Scale is a page property. In a multiple-page drawing, each page can have a different scale. The rulers in each of these drawings reflect a change in scale.

Because drawing scale is the ratio of page units (measurements on the printed page of drawing) to drawing units (units of measure that appear on the rulers and represent the real-world measurements), you need to make sure that you choose the appropriate measurement unit for each before you set your drawing scale.

For example, a drawing of a bolt may have a drawing scale of 10:1, meaning that every 10mm on the printed drawing represents 1mm on the actual bolt. In that case, you would set both the page units and the drawing units to millimeters.

In some cases, however, you may want to have a drawing scale where the ratio is made up of two different measurement units. For example, in a landscape layout, 1 inch on the printed drawing may need to represent 3 feet or even 3 yards. If you set the drawing scale as 1:3 and both the page and drawing units are set to inches, you won't get the scale you want. Instead, 1 inch on the page will represent 3 inches in the landscape, which would require an enormous drawing!

To set default page units:

1. Choose Tools > Options, then click the Default Units tab.
2. For Page, choose the units of measure you want.

   You can also set default Text, Angle, and Duration units.
3. Click OK.

To set drawing units for a particular page:

1. Display the page for which you want to change the drawing units.
2. Choose File > Page Setup, then click the Page Properties tab.
3. Choose the units of measure you want, then click OK.

   The rulers will show the new measurement units.

To set a drawing scale:

1. Display the page for which you want to set a scale.
2. Choose File > Page Setup, then click the Drawing Scale tab.
3. Choose a standard architectural or engineering scale, or enter a custom scale in the Drawing Scale edit box, then click OK.

   Visio redraws the page and adjusts the rulers to reflect the new settings.

A Choose or type the ratio of the page units to the drawing units.

B If the drawing should print at its actual size, select No Scale, then select 100% scale in the Print Setup dialog box.

C Choose a type of drawing scale from the list of scales relevant to a particular discipline.

D Choose to enter a custom ratio of page size to drawing size.

E Specifies the size of the drawing page, based on the Drawing Scale and the Physical Page Size.

F Indicates the size of the printed page. You can change this setting in the Page Size tab.
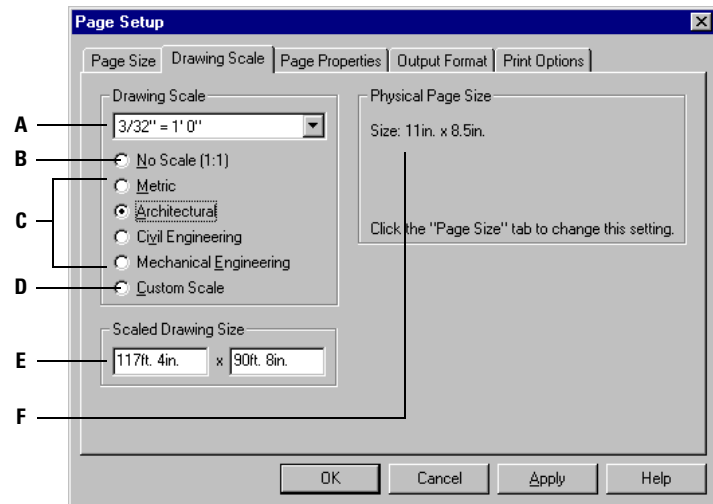
Choose File > Page Setup, then click the Drawing Scale tab.

Protecting shapes and files

About protecting shapes and files

If you plan to share drawings, stencils, or templates with other people, you may want to protect the files, the shapes you create, or certain aspects of a drawing to prevent inadvertent changes.

You can protect shapes and drawings using the following methods:

- Lock shapes to prevent them from being modified in specific ways. For example, you can lock a shape against rotation or resizing.
- Lock a layer so no shape on that layer can be modified. For example, if you give an office layout to an electrical wiring planner, you can lock all layers except the one for the wiring so that no other aspects of the layout are available for editing.
- Place shapes, such as logos or title blocks, on a background so they won't be affected by changes made to the drawing page.
- Prevent attributes of a drawing, such as styles, from being modified.
- Save a file as read-only, so it can't be modified in any way.

Related topics

Locking shapes against changes

You can lock shapes using the Protection command to protect them from resizing, repositioning, rotating, deleting, and selecting.

When a shape is locked against resizing or rotating, it displays padlocks where the resizing and rotation handles usually appear, to indicate that those handles cannot be selected.
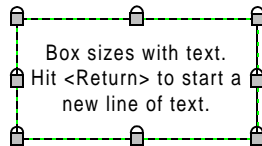
Padlocks over a shape's selection handles indicate that the shape is locked against changes. Some Visio shapes are locked against editing in this way, such as the Auto-size shape on the Block Diagram stencil, which is locked against manual sizing because its size is determined by the amount of text you type in the shape. Unlocking and changing these shapes may cause them to behave in unexpected ways.

NOTE The Protection section in the ShapeSheet spreadsheet includes protection options not available in the Protection dialog box, such as locking against cropping, editing with any drawing tool, text editing and formatting, group editing, and recalculation of height and width when you size the shape.

A Lists characteristics you can lock on the selected shape. When an item is checked, the characteristic is locked against changes. You can choose as many of the characteristics as you want.

B Locks all ten options in the Protect section.

C Unlocks all ten options in the Protect section.
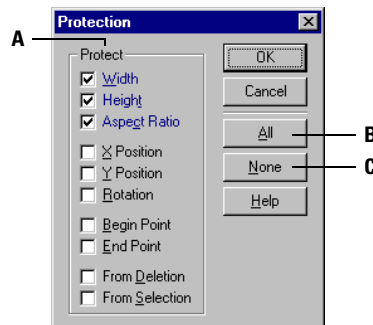
To lock a shape against selection:

1. Select the shape you want to protect.

2. Choose Format > Protection.

3. Check From Selection, then click OK. When a message box appears, click OK.

4. Choose Tools > Protect Document. Check Shapes, enter a password if you want, then click OK.

NOTE After you click OK, you won't be able to see your password, so make sure you memorize it or write it down.

To unlock shapes so you can select them:

1. Choose Tools > Protect Document, then uncheck Shapes.

2. Choose Format > Protection, then uncheck From Selection.

To lock or unlock other shape behaviors:

1. Select the shape.

2. Choose Format > Protection.

3. Check the shape behaviors that you want to lock or uncheck the behaviors you want to unlock, then click OK.

TIP You can also use the SmartShape Wizard to lock shape behaviors. To run the wizard, choose Tools > Macro > Visio Extras > SmartShape Wizard.

Related topics

Saving files as read-only to prevent changes

When you base a drawing on a template, or open a stencil separately, the stencil opens as read-only by default. That way, if you share a stencil you created with other Visio users, they can't accidentally change masters on your stencil. However, unless you save the stencil as read-only, other users have the option to open it in read/write mode by clicking the Original button in the Open Stencil dialog box.

To prevent others from changing an original stencil, template, or drawing file you create, you can save it as read-only. If a Visio stencil, template, or drawing file is saved as read-only, you can open a copy of the file for editing, but the only way to change the original file is to reset the file properties through Windows. For details about resetting the file properties through Windows, see your Windows documentation.

If you plan to save a stencil as read-only, you must have the original stencil open.

To open an original stencil:

1. Choose File > Stencil > Open Stencil.

2. Highlight the file icon for the stencil name you want to open.

3. Under Open, select Original, then click Open.

To save a file as read-only:

1. Open the file and make the appropriate window active. For example, if you're saving a stencil, open the original stencil, then click the stencil window title bar.

2. Choose File > Save As.

3. For Save In, navigate to the folder you want to save the file in.

4. For File Name, type a file name for the read-only file.

5. For Save As Type, choose the type of file you want to save, for example, Stencil (*.vss).

6. Under Save, check Read Only.

7. Click Save.

TIP After you have saved a file as read-only, to make the file read/write again use the Save As command to save the file to another name.

To open a copy of a read-only file:

1. Choose File > Open.

2. Highlight the file icon for the read-only file you want to open.

3. Under Open, check Copy, then click OK.

Related topics

Storing and reporting on data in Visio shapes

About storing data in shapes

A Visio drawing is more than a picture—it's a valuable medium for storing data. A shape can act as a visual database field that stores data you can retrieve in a report. For example, a shape in a flowchart can store data about the cost, duration, and resources involved in the process the shape represents.

Custom-property fields are stored in their own section of the shape's ShapeSheet spreadsheet. You can add fields using the Custom Properties Editor.

To store data with a Visio shape, give the shape custom-property fields into which others can enter custom-property data. Many Visio shapes come with some custom-property data already assigned in custom-property fields.

Related topics

Adding data to shapes' custom-property fields

Many masters already include custom-property fields. All you have to do is enter the data. For example:

- Flowchart masters include custom-property fields in which you can enter cost, duration, and resources.

- Office layout masters include fields for inventory number and owner.

You can also create custom-property fields if the fields you want don't already exist.

To find out if a shape has custom-property fields:

- Select the shape, then choose Shape > Custom Properties.

   If the shape has property fields, the Custom Properties dialog box appears, listing the property fields and describing their purpose. If the shape doesn't contain custom-property fields, a message appears to that effect.

To enter values in a shape's custom-property fields:

1. Select the shape to which you want to add the data.

2. Choose Shape > Custom Properties.

3. Enter the data you want in each field, then click OK.

TIP You can also enter custom-property data by right-clicking the shape then choosing Properties or, for some shapes, a "Set…" command for setting a particular property.

Related topics

Adding, editing, and deleting custom-property fields

To develop your own custom solution, you may want to edit existing custom-property fields, add new ones, or delete fields you don't need. You may also want to add custom-property fields to new shapes you create. You can do all these things with the Custom Properties Editor.

With the Custom Properties Editor, you can make changes only to masters on stencils. You can edit shapes on the following stencils:

- A standalone stencil that comes with your Visio product.
- A stencil that you created.
- A particular drawing's local stencil. Changing the shapes on a drawing's local stencil updates the instances on the drawing page.

Choosing where to edit custom-property fields

Where you edit custom-property fields depends on what you intend to do with the shapes. If you want to reuse a master with updated custom-property fields in several drawings, edit the master's properties in the standalone stencil. If you want to apply the updated properties to the current drawing only, edit the master's properties on the local stencil.

Editing in a standalone stencil A standalone stencil is a file with a .vss extension. Stencils that open with templates are standalone stencils. You can also open standalone stencils separately to use with any drawing.

If you edit custom-property fields for a master in a standalone stencil, the changes are available in new drawings you create after saving the new property fields for the master.

Editing in a local stencil A local stencil is the stencil associated with a particular drawing. It contains all the masters you've dragged from standalone stencils to that drawing, even if you've deleted the instance of the master from the drawing. Unless you save a local stencil as a file (so it becomes a standalone stencil), it's available only when you open the drawing with which it's associated.

A shape on a drawing page inherits its styles and properties from the master on the local stencil. Therefore, if you edit custom properties for a master on the local stencil, you also edit all the instances of that master in the drawing. In addition, each new instance you create by dropping the master from the standalone stencil to the same drawing inherits the custom-property edits you made.

To edit, add, or delete custom-property fields:

1. Choose Tools > Macro > Custom Properties Editor.

2. On the first screen, choose the location of the masters you want to edit, then click Next.

3. Follow the remaining screens.

NOTE Many Visio shapes come with custom-property fields already assigned. It's best not to delete these fields because they can affect other aspects of shape behavior.

To see the changes you've made to a shape's custom-property fields:

1. If you edited a master on a standalone stencil, drop an instance of the master with the custom properties you edited onto a drawing page.

   If you edited a master on a local stencil, select an instance of that master on the drawing page.

2. With the shape selected, choose Shape > Custom Properties, or right-click the shape and choose Properties.

   The Custom Properties dialog box appears, showing the changes you made.

After you add, edit, or delete custom-property fields, you can add data to the fields.

Related topics

Creating reports from custom data

If shapes have custom-property fields in which you have entered data, you can generate inventory and numeric reports based on that data. Visio places your report data in a spreadsheet, which you can save as a Microsoft Excel worksheet (.xls) or a text file (.txt). The results appear in one or more report shapes in your drawing.

Property Report	
Created: 5/2/97, 10:55:40 AM	CONFIDENTIAL
ITEM	TOTAL
Cost	1000
Duration	9
Resources	8

A numeric report can include calculations for totals, averages, maximums, minimums, and medians, as well as any advanced calculations you can perform using formulas in a spreadsheet. This report shape shows totals for the cost, resources, and duration properties.

Layers and reports

When you want to generate more than one report for a drawing, you can use layers to assign your shapes to separate categories, and then create reports based on the categories. For example, in a process flowchart, you can assign the shapes associated with each subprocess to a separate layer. Then you can easily generate an inventory report for the entire process that lists the cost, time, and resources associated with each step. You can also generate separate numeric reports for each subprocess that calculate the total or average costs for each step in the subprocess.

If you generate a report on shapes not on a layer, Visio creates a new layer and assigns the selected shapes to it. The layer doesn't affect the appearance of your drawing—it places the shapes in a category that you can select, hide, lock, print, or color separately. Having shapes on a layer also makes it easier to update a report.

Generating numeric and inventory reports

You have options for limiting and presenting reports. For example, you can re-port on all shapes in a drawing or only on selected shapes, and you can choose the properties you want the report to include. You can decide which drawing page to place the report shape on and you can add subtotal reports to each drawing page. Your report shapes can include document information, such as creation date and time.

To generate a numeric or inventory report:

1. Choose Tools > Property Report.

2. On the first screen of the Property Reporting Wizard, click Next.

3. On the second screen, choose the shapes you want to report on, then click Next.

4. Follow the wizard screens.

TIP When you run the Property Reporting Wizard, you have the option of saving the spreadsheet. If you save it, you can open it in any program, such as Microsoft Excel or Windows Notepad, that can open .xls or .txt files.

Generating quick inventory reports

For certain types of drawings in which you may incorporate data frequently, such as network diagrams, office layouts, and organization charts, you can quickly export an inventory report based on the shapes you specify and their custom properties. You save the exported information in a Microsoft Excel file, a Microsoft Access file, or a Text file.

To generate a quick inventory report:

1. Select the shapes you want to report on.

2. Choose Tools > Export [data].

3. Click the Properties button to choose which properties to include in your report.

4. Choose whether to report on all pages in the document, whether to report on all shapes or selected shapes, and whether to create a report in Excel, Notepad, or Access.

5. Type a name for, or navigate to locate, the report file, then click OK.

Related topics

Updating and revising reports

When you run the Property Reporting Wizard to create an inventory report, it creates a report shape that contains the data you specified. Once a report shape is on a drawing page, you can edit the shape data to update the report.

When you update a report, you also update the spreadsheet if you saved it when you first generated the report. You can save the revised spreadsheet under a new name or replace the original.

To update a report:

- Right-click the report shape, then choose Update Property Report from the shortcut menu.

  If you saved the spreadsheet when you first generated the report, the wizard opens a new spreadsheet that includes the revised report results. You can save the revised spreadsheet under a new name or replace the original one.

To replace the title for a report shape:

1. Select the report shape.

2. Choose the text tool from the Standard toolbar, click the existing title, select the text, then type a new title.

Related topics

Creating databases from shape properties

You can run the Database Export Wizard to export data from shapes into a database table. For example, you can create an inventory report for shapes in an office layout or network diagram. In the process of running the wizard, you can select the ShapeSheet cells from which you want data exported.

You can either generate a new database, overwrite data in an existing database table, or insert a new table into an existing database. The wizard works with any ODBC-compliant database application.

If you want to insert a table into an existing database, the database must be defined as an ODBC-data source. You can define the database as a data source within the Database Export Wizard. When you create a new database in the wizard, you also define it as a data source.

You can export data for every shape in the drawing or for selected shapes. You can select the shapes with data you want to export by placing those shapes on a separate layer. The wizard prompts you for the appropriate layer.

When you export, the wizard determines the most appropriate data type for the information in each cell or field you're exporting. You can change the data type settings and you can specify how you want to interpret the data (for example, as a formula, value, number, or number with a particular set of units).

ShapeKey	FillForegnd	ShapeText	PropCost	PropDurat	PropResou
1	6	Process 1	250	2	2
2	3	Decision	100	1	2
3	7	Report	150	3	1
4	6	Process 2	300	2	2
5	7	Storage	200	1	1
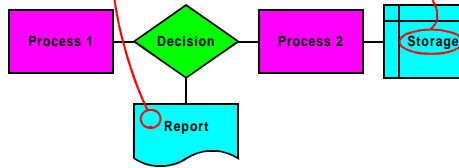
Each shape in the drawing is represented by a record (or row) in the database table and each custom-property field or ShapeSheet cell is represented by a field (or column). Data you enter in the custom-property fields in Visio or in ShapeSheet cells appear as values in the database table cells.

To create a database from shape properties:

1. Open the drawing with shape data you want to export.

2. Choose Tools > Macro > Database > Database Export.

3. On the first wizard screen, click Next.

4. Follow the wizard screens.

TIP When you run the Database Export Wizard to export shape data, the wizard stores export-related information with the drawing page. If you make changes to the shapes and want to re-export the data, you can right-click the drawing page and choose Database Table Export.

Related topics

Creating drawings from external data

About creating drawings from data

You can use data created in programs other than Visio to generate drawings. The data is represented graphically by Visio shapes. Drawings and shapes created in this way are called "data-driven."

The data can be in text (.txt), Microsoft Excel (.xls), or Microsoft Project exchange (.mpx) format, or it can exist in a database created in an ODBC-compliant database application. ODBC stands for Open Database Connectivity, which is a standard Microsoft interface that allows applications to access, view, and modify data from a variety of databases.

For example, from

- A human-resources employee database, you could generate a corporate organization chart.
- A data file that lists project tasks, resources, start dates, and end dates, you could generate a project timeline.
- A text file that includes information about shapes and links, you could generate a flowchart.

You can also create data-driven shapes and drawings by establishing links between Visio objects and records in database tables.

Related topics

Creating organization charts from data files

Visio includes stencils with shapes that make it easy for you to create organization charts. Often, however, electronic data files already exist that include the information about your corporation or group that you'd want the organization chart to convey. For example, many corporations have human-resources data files that list employee names, job titles, managers, and more. Using the Organization Chart Wizard, you can use the data from such a data file to generate an organization chart.

The Organization Chart Wizard can read data files in the following formats:

- Microsoft Excel (.xls)
- Org Plus (.txt)
- Text (.txt), tab- or comma-delimited
- The file format for a database created in an ODBC-compliant database application, such as Microsoft SQL Server, Microsoft Access, and Oracle SQL Server. The database must be a "flat file," that is, all the data the wizard requires must reside in one database table.

If you don't have such a data file, the wizard provides templates you can use to create one in Microsoft Excel or text file format.

Setting up an organization chart data file

In the data file, each row represents a box (or employee) in the organization chart. Each column represents data about the employee. The data file must include at least three columns that provide

- An ID number or name that uniquely identifies each employee.
- Employee name.
- Who the employee reports to.

The data file can also include additional columns for other data, such as telephone number, office location, and more. When you run the wizard, you can add the optional columns to the organization chart shapes as custom property fields.

If you have custom shapes you want the wizard to use when it creates the organization chart, you must include a column named Master_Shapes in the data file. In each row, type the name of the shape you want to use.

You'll get the best results by setting up the data file you want the Organization Chart Wizard to read so that it conforms to certain requirements. The following comma-delimited text (.txt) file illustrates how to set up your data file.

A

```
Unique_ID,Name,Position,Reports_To,Department,Telephone,Master_Shape
a,Ben Wyss,Financial Controller,e,Finance,555-4300,Position
b,Chris Klustner,Commercial Director,d,Marketing,555-4400,Position
c,Dave Vollan Cole,Dir. Client Services,e,Finance,555-4500,Position
d,Geraldine Gigot,Vice-Pres. Marketing,f,Marketing,555-4444,Manager
e,Eric Philip,Vice-Pres. Finance,f,Finance,'555-5555,Manager
f,Susan Jaech,CEO,,,555-6666,Executive
```

B

C　　**D**　**E**　　　　**F**

Your data file must include the following:

A Information broken out under the column headings Unique_ID, Name, and Reports_To, or equivalent columns with different names. If your data file uses different heading names, the wizard prompts you to indicate which columns it should use to find this information. You can include additional columns, as shown here, but they are not required by the wizard.

B A field that uniquely identifies each record from the database. If each employee has a unique name, the Name field can serve as the unique identifier field. Otherwise, you must provide another field, such as Unique ID or Employee Number.

C Placeholders for columns with no data in them. In a spreadsheet or database table, leave the columns blank.

D Entries in the Reports_To column for all the records except one (the one for the person at the top of the chart). Use the unique identifier in the Reports_To column to indicate to whom a person reports.

E In an Excel data file, use a single quotation mark before any telephone numbers you want to include. For example, enter a telephone number in Excel as '555-4497. The single quotation mark tells Excel to treat the number as a string (rather than as an integer).

F Shape names in this column for any shapes (including custom shapes you create) you want the organization chart to substitute for its own default shapes while creating the chart.

NOTE You can add comment lines to a text file. Use a single quotation mark as the first character in a comment line to tell the wizard that the line does not contain data.

To draw an organization chart from an existing text or Microsoft Excel file:

1. In Visio, choose File > New > Business Diagram > Organization Chart Wizard.

2. On the first screen, click Next.

3. On the second screen, click Read Data From Existing File, then type the file location and name, or click Browse to locate the file.

4. Follow the wizard screens.

Creating an organization chart from a database table

With the Organization Chart Wizard, you can create an organization chart from a database table and link the chart and the table so that you can pass information back and forth to keep the two files synchronized. For example, you can change an employee's phone number and manager information in the database and then refresh the chart to reflect the changes.

In the wizard, you can choose options that control which direction information flows. For example, if the database table is the human resources database for your corporation, you may not want changes you make in the organization chart to affect the database.

NOTE The Organization Chart Wizard requires that the database you are linking to be defined as an ODBC-compliant data source. You can define the database as a data source by clicking Create Data Source on one of the wizard screens.

To create an organization chart from a database table and link the two files:

1. In Visio, choose File > New > Business Diagram > Organization Chart Wizard.
2. On the first screen, click Next.
3. On the second screen, click ODBC Data Source.
4. On the third screen, choose the data source you want the wizard to read, then click Next.

   If your database does not appear in the list, it is probably not defined as an ODBC data source. Click Create Data Source, then follow the instructions onscreen until you are returned to the wizard, then choose your database in the list.
5. Follow the wizard screens.

Creating a data file using a template

If you haven't already created a data file, you can run the Organization Chart Wizard to open a data file template in text (.txt) or Microsoft Excel (.xls) format. The template is set up with the correct column heading structure so that you can enter your data.

NOTE You can also open the templates without running the wizard. Both template files are named Org Chart Data Template and are located in the \\Visio\Solutions\Business Diagram folder. Check the file icon to determine which template you want to open.

To create a data file using a template:

1. In Visio, choose File > New > Business Diagram > Organization Chart Wizard.

2. On the first screen, click Next.

3. On the second screen, click Enter Data In New Text File or Enter Data In New Microsoft Excel Workbook, then click Next.

4. Follow instructions on the wizard screens for entering data into a text or Excel template.

5. After entering the data in the template, name and save the file. Choose Tools > Macro > Business Diagram > Organization Chart Wizard to restart the Organization Chart Wizard and, on the second screen, choose Read Data From Existing File.

Organization Chart Wizard troubleshooting

If the Organization Chart Wizard is unable to read your data file or produces an unexpected result, check your file for the following:

• Missing tabs or commas from your data file.

• Any records that are not uniquely identified.

• Circular references—that is, a person who reports to him or herself or to a subordinate.

• More than one record without an entry in the Reports_To column. Only the Reports_To record for the person at the top of the chart should be left blank.

Related topic

Creating project timelines from data files

Using the Project Timeline Wizard, you can generate a timeline from a data file created in another application that contains task names, start and end dates, dependencies, resources, and other information.

The wizard requires that the data file be in comma- or tab-delimited text (.txt), Microsoft Project exchange (.mpx), or Microsoft Excel (.xls) format.

If you haven't already created a data file, you can run the Project Timeline Wizard to open a data file template in text (.txt) or Microsoft Excel (.xls) format. The templates are set up with column headings in place so that you can simply enter your data.

NOTE You can also open the templates without running the wizard. Both template files are named Timeline Data Template and are located in the \\Visio\Solutions\Business Diagram folder. Check the file icon to determine which template you want to open.

Even if you don't have a data file, you can run the Project Timeline Wizard and create a project timeline to which you add data later. While running the wizard, you can choose format (for example, whether or not to display vertical and horizontal lines) and style (for example, taskbar color) options.

Setting up a project timeline data file

You'll get the best results by setting up the data file you want the Project Timeline Wizard to read so that it conforms to certain requirements. The following comma-delimited text (.txt) file illustrates how to set up your data file.

```
A ── Task#,Task Name,Duration,Start Date,End Date,Dependency,Resource
      1,Develop Timeline Wizard,30 d,7/17/95,8/15/95,,Jason
      2,Beta I,,7/26/95,,,Program Team
B ──  3,Develop Layout Wizard,16 d,7/17/95,8/1/95,,Matt
      4,Beta II,,8/9/95,,,Program Team
C ──  5,Develop Orgchart Wizard,23 d,7/17/95,8/8/95,,Keri
      6,Write Documentation,2 w,8/9/95,8/22/95,5,User Ed
D ──  7,Beta III,,8/23/95,,,Program Team
      8,Print Manuals,1 w,8/23/95,8/29/95,,Media Now
      9,Assemble Product,2 d,8/30/95,8/31/95,8,Media Now
      10,Ship Visio,,9/1/95,,9,Visio Corporation
                         E                          F
```

Your data file should adhere to the following guidelines:

A Information should be broken out under the column headings Task#, Task Name, Duration, Start Date, End Date, Dependency, Resource. (If a task includes a Start Date and a Duration, you don't have to include an End Date.)

B For milestones, specify only a Start Date.

C Include placeholders for columns with no data in them.

D For Dependency, use the number of the task that the current task is dependent upon.

E Abbreviate durations as follows: "d" for days, "w" for weeks, or "m" for months.

F For Resource, you can use anything you want, including names or number of people. Data in the Resource column doesn't automatically appear in your project timeline drawing. You can choose to display Resources in timeline bars when you run the Project Timeline Wizard, or you can add a Resource column to the project timeline on the drawing page.

To create a project timeline from an existing data file:

1. Choose File > New > Business Diagram > Project Timeline Wizard.

2. On the first screen, click Next.

3. On the second screen, click Import MPX File to import a Microsoft Project exchange file or Read Data From Existing File to have the wizard read a text (.txt) or Microsoft Excel (.xls) file.

4. Type the file location and name or click Browse to locate the file.

5. Follow the wizard screens.

To create a data file using a template:

1. Choose File > New > Business Diagram > Project Timeline Wizard.

2. On the first screen, click Next.

3. On the second screen, click Enter Data In New Text File or Enter Data In New Microsoft Excel Workbook, then click Next.

4. On the third screen, type a name for the data file, then click Next.

5. If you chose to enter data into a new text file, the wizard opens a comma-delimited text file with column headings in Notepad. Enter your data, name and save the file, and exit Notepad. In Visio, choose Tools > Macro > Business Diagram > Project Timeline Wizard. On the second screen, confirm that the text file listed is the one you just created, then follow the wizard screens.

   Or, if you chose to enter data into a new Excel workbook, the wizard opens an Excel workbook with column headings. Enter your data. Name and save the file, then choose Tools > Macro > Business Diagram > Visio Timeline Wizard and follow the wizard screens.

Related topics

Creating connected drawings from text files

If you have a large amount of existing data in text files, you can import the data using the Visio text import filter, and then convert it to drawings. The text files must be in Comma Separated Variable (.csv) or Text (.txt) format.

You can create the files in a spreadsheet application, a word-processing application, or a text editor such as Notepad. For example, you can use a spreadsheet application, such as Microsoft Excel, to create an employee list that you can convert to an organization chart. Then you can export that data to .csv or .txt format and import it into Visio to convert the data to a drawing.

To import a text file and create a drawing, you must set up the text file in a certain way. The example below shows you a text file that has been set up correctly and the drawing the text file creates. Following the drawing, you can find additional details about text file structure, text delimiters, record delimiters, comment lines, and record types.

This text file:

```
;Shape,ID,Master,Text,X,Y,Width,Height,Property
Shape,PATRICIA,,Patricia Rodman
Shape,STEVE,,Steve Melvin
Shape,TROY,,Troy Morris
Shape,ELIZABETH,,Elizabeth Davis
Shape,SARAH,,Sarah Wright

;Link,ID,Master,Text,From,To
Link,,,,PATRICIA,TROY
Link,,,, PATRICIA,STEVE
Link,,,,TROY,ELIZABETH
Link,,,,TROY,SARAH
```

Becomes this Visio drawing:
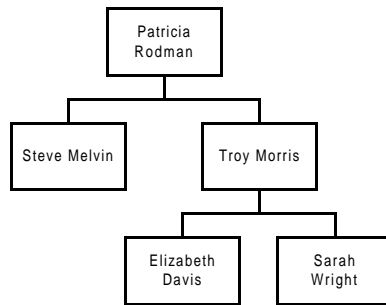
Text file structure

To compose a file that the Visio text import filter can translate, create records of various types, each containing individual fields. Generally, each line of text in the file is considered a separate record, and the first field in a record identifies the record type. In the example file above, there are five "Shape" records and four "Link" records. Shape and Link are the record types. Each record is divided into fields by a field separator character. In .csv files, the default field separator character is the comma; in .txt files, the default character is the tab.

Text delimiters

The Visio import filter interprets anything enclosed in double quotation marks as text, including numbers and characters that may otherwise have a special meaning, such as the End-of-Line character. Using text delimiters is optional— if you do not enclose a text field within quotes, the filter assumes any field that isn't a number or special character is text.

Record delimiters

To begin a new record, type an End-of-Line character, or hard carriage return. (Press the Enter key on your keyboard.) If a hard carriage return is part of a text field enclosed in double quotes, it is not interpreted as a record delimiter.

Comment lines

If you want to add comments to the file that aren't part of the drawing, type a semi-colon (;) at the beginning of a line, then type your comments. In the example above, the comment lines help you remember the order of the fields by listing the field headings.

Record types

To code a text file for importing into Visio, you should be familiar with the record types that the Visio text import filter recognizes and the fields used with each type.

Details about record types and a procedure for converting text files are available in online help. In Visio, press F1, click Index, then type "record types" or "converting."

Related topics

Creating data-driven shapes and drawings

About data-driven shapes and drawings

By establishing connections between shapes and database records, you can create Visio drawings that function as visual representations of data. You can also generate new masters from database records. Once you've established a shape-record connection, you can pass information back and forth between Visio and the database and keep the two versions of the data synchronized.

For example:

- From a personnel database, you can generate business cards for all of your employees.
- From a parts-specifications database, you can generate masters for your employees to use in drawings.
- By connecting an inventory database to an office space plan, you can track furniture and equipment. If you delete a chair from the office plan, you also delete a record from the database.

You can use the Database Wizard to connect Visio drawings to databases created in applications compliant with the Open Database Connectivity (ODBC) standard, a Microsoft interface that allows applications to access, view, and modify data from a variety of databases. ODBC-compliant applications include Microsoft SQL Server, Microsoft Access, and Oracle SQL Server.

Before you can connect Visio shapes and drawings to database records, you must have the appropriate ODBC components and database drivers installed on your computer. (Choose Complete while installing Visio to install the ODBC components and drivers.) In addition, the database you want to connect to must be defined as an ODBC data source.

Defining a database as an ODBC data source

You can define a database as an ODBC data source through the Windows control panel. Or you can run the Database Wizard to link a shape or drawing to a database and define your database as a data source without leaving the wizard.

To define a database as an ODBC data source:

1. From the Windows 95 Start menu, choose Settings > Control Panel.

2. In the Control Panel, double-click the ODBC icon. The icon may be called 32-bit ODBC.

    If the icon doesn't appear, you may have chosen Custom or Minimum when you installed Visio. To install the ODBC components, begin the Visio installation process again. Choose Custom for the type of installation, then choose to install only Database Tools.

3. If you're using Office 95, in the Data Sources dialog box, the databases that are set up as data sources appear under User Data Sources. If your database isn't listed, click Add.

    If you're using Office 97, in the ODBC Data Source Administration dialog box, the databases that are set up as data sources appear under User Data Sources. If your database isn't listed, click Add.

4. If you're using Office 95, in the Add Data Source dialog box, select the driver for the application in which you created your database, then click OK.

    If you're using Office 97, in the Create New Data Source dialog box, select the driver for the application in which you created your database, then click Finish.

5. In the Setup dialog box for the driver, locate the database you want to link to a Visio shape or drawing. Supply other information and options as needed, then click OK.

6. In the Data Sources dialog box, click Close. Click OK.

ODBC Settings

If you connect to databases in multi-user environments, you may want to control certain ODBC settings, such as how many times the wizard attempts to update the database or how long it waits before the operation fails.

To control ODBC settings:

1. In Visio, choose Tools > Macro > Database > Database Settings.

2. Choose the number of retries, retry interval, or time out interval you want, then click OK.

Related topics

About shape-database connections

When you connect a shape to a database, you actually connect cells in the shape's ShapeSheet spreadsheet to fields in a database table. The Database Wizard lets you choose which ShapeSheet cells link to fields in the database. If no appropriate ShapeSheet cells exist, the wizard creates new cells in the Custom Properties section of the ShapeSheet spreadsheet.

As a simple example, assume you had a database for colored blocks that includes fields for Block Name, Color, Height, and Width. In the Shape Transform section, the ShapeSheet spreadsheet includes cells for Height and Width. In the Fill Format section, the ShapeSheet spreadsheet includes a cell called FillForegnd. In the process of linking a master to the colored blocks database, you can choose to connect the Height, Width, and FillForegnd cells in the ShapeSheet spreadsheet to the Height, Width, and Color fields in the database. Because the ShapeSheet spreadsheet contains no cells that correspond to Block Name, you can have the wizard create such a cell in the ShapeSheet spreadsheet's Custom Properties section.

Values in ShapeSheet cells match values in the database records the cells are connected to. If you change the shape, you can pass the new values to the database. If you change the database, you can pass the new values to the shape's ShapeSheet spreadsheet.

When it links a shape to a database, Visio also creates a User-defined Cells section in the ShapeSheet, if that section doesn't already exist for the shape. In this section, the wizard stores information about the primary key for the database table, which database fields are associated with which ShapeSheet cells, and the last valid data retrieved from the database. The rows Visio creates include:

- **ODBCDataSource**, which contains the ODBC data source name.
- **ODBCQualifier**, which stores the name of the database or directory that contains the linked table. This cell contains a value only for ODBC data sources in which a single data source can support multiple databases or directories.
- **ODBCTable**, which contains the name of the linked data source table or view.
- **ODBCKeyField1 to ODBCKeyField5**, which contain the names of the fields (key fields) that comprise the primary key for the linked table.
- **ODBCKeyCell1 to ODBCKeyCell5**, which contain the names of the custom properties in the ShapeSheet that are used to store the values for the key fields named in the ODBCKeyFields cells.
- **ODBCLink1, ODBCLink2**, and so on (one row per linked field), which specify which data source table fields correspond to which ShapeSheet cells. Information about how Visio evaluates data copied from the field to the cell (that is, as a string or as a number) is also stored here and, if the number is a measurement, the row includes measurement units.

  Information about how Visio evaluates data is stored in the form of numeric codes. Value (string) is indicated by a 0, Formula (string) is indicated by a 1, and Number is indicated by 32. For a list of the numeric codes corresponding to measurement units, in the online Visio Automation Reference, search for "result property."
- **ODBCKeyMirror1 to ODBCKeyMirror5**, which contain the last valid key values used when transferring information to or from the data source. The wizard monitors these cells to determine which record a shape was linked to when you changed its key values. Changes to key values in a monitored shape are reflected in the corresponding data source table record.
- **ODBCMirror1, ODBCMirror2**, and so on, which store the last valid values retrieved from linked data source table fields. There is one ODBCMirror cell for each cell-field link defined in the ODBCLink cells. The wizard uses these cells to determine whether values have changed, in the database or shape, since the most recent synchronization of the data.

Related topics

Connecting shapes to database records

The first step in establishing a connection between Visio and a database is to connect a shape to a database record. You can connect a shape instance, a master on the local stencil, or a master on a standalone stencil.

- When you connect a shape instance, no other shapes are affected. If you make copies of the shape, the copies are also linked.
- When you connect a master on a local stencil (the stencil made up of all the masters you've used in a drawing file), you also automatically connect all instances of that master in the drawing.
- When you connect a master on a standalone stencil (one of the stencils that came with Visio or one you created), each time you drop the master, the new instance is also connected.

To connect a shape to a database record:

1. In Visio, choose Tools > Macro > Database > Database Wizard.

2. On the first wizard screen, click Next.

3. On the second screen, choose Link A Shape To A Database, then click Next.

4. Follow the remaining wizard screens until you've completed the connection.

Related topics

Creating drawings that represent database tables

After you've connected a master on a stencil to a database, you can run the Database Wizard and create a drawing in which each database record is represented by a shape on the Visio drawing page. When you create a drawing with one-to-one connections to database records, the wizard launches a drawing monitor. The monitor manages the connections between the Visio shapes and database records. If you delete a shape, the monitor informs the database table, which deletes the corresponding record. If you add a shape, the monitor informs the database table and a record is added. If you change a shape, the monitor passes on the changes and values in the database table are updated.

When you run the Database Wizard to create a drawing that represents a database table, you can control how the drawing monitor will behave when you subsequently open the drawing. You can also establish a connection that allows you to pass changes from the database to the drawing, but not from the drawing to the database.

With a global setting that affects all ODBC database-drawing connections, you can set the drawing monitor to refresh shapes (that is, pass any changes made in the database to the shapes' ShapeSheet cells) at regular intervals (the interval you set depends upon how frequently you update the database). In the Database Wizard, when you're creating a particular drawing, you have the option of turning the refresh-interval setting off for a particular master-database table link. Turning global refresh off for one link doesn't affect any other links.
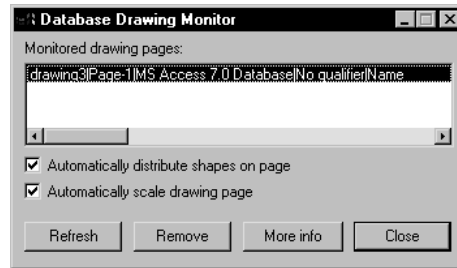
In the Database Wizard, you can set an option for opening the drawing monitor automatically each time you open a drawing connected to a database. You can also add a Launch Monitor action to the drawing page so you can launch the monitor by right-clicking the page and choosing the action command.

To create a drawing that represents a database table:

1. Run the Database Wizard and connect a master shape to a database record. Link each database field to a ShapeSheet cell.

2. After the master shape is connected to a database record, choose Tools > Macro > Database > Database Wizard to run the wizard again.

3. On the first wizard screen, click Next.

4. On the second screen, choose Create A New Linked Drawing Or Modify An Existing One, then click Next.

5. On the third screen, choose Create A Drawing Which Represents A Database Table, then click Next.

6. Follow the wizard screens to create the drawing.

TIP If you want to open an existing drawing that is connected to a database or add events and right-mouse actions to synchronize the database and drawing, run the Database Wizard. On the second screen, choose Create A New Linked Drawing Or Modify An Existing One, and on the third screen, choose the option you want.

To set a global refresh interval for the drawing monitor:

1. In Visio, choose Tools > Macro > Database > Database Settings.

2. Check Automatically Refresh Drawing Page, type the number of seconds in the interval, then click Save.

TIP When you run the Database Wizard to create a particular drawing, you have the option of turning the refresh setting off for a particular master-database table link.

Creating new masters from database tables

Using the Database Wizard, you can generate a set of masters that graphically represents the records in a database table, then save the masters on a stencil.

For example, if you maintain an inventory database of bookcases that your company manufactures, you can generate a master for each specific bookcase, save the masters on a new stencil, then distribute the stencil so everyone in the company can include bookcase shapes in their drawings and other documents.

If you expect to revise the database table, you can save the connections between the masters and the database records. Then, when you revise the table, you can refresh the masters so the values in their ShapeSheet cells match the values in the database records.

NOTE If you don't save the connections, the masters' ShapeSheet cells contain a snapshot of the data that existed in the database fields at the time you created the new masters, but no information about which database records the data came from. If you make changes to the database, you can't refresh the existing masters to reflect the changes. You must run the Database Wizard again and generate new masters.

To generate new masters from a database table:

1. In Visio, choose Tools > Macro > Database > Database Wizard.

2. On the first wizard screen, click Next.

3. On the second wizard screen, choose Generate New Masters From A Database, then click Next.

4. Follow the screens until you create the masters.

Synchronizing drawings and databases

When you run the Database Wizard to connect a shape or drawing to a database, you can add right-mouse actions and ShapeSheet events to shapes or to a drawing page. You can use these actions and events to pass information between Visio and the database application.

- Right mouse-click actions are available on a shortcut menu that appears when you right-click a shape or page.
- Events represent Visio's responses to a user action, such as opening a drawing.

NOTE If you create a drawing that is a graphical representation of a database table, you can also use the drawing monitor to pass information between the drawing and the database.

Right-mouse actions and events

Action or event	Added to	Result
Refresh shape on-drop event	Shape	When you drop a master or copy a shape, the values in the linked ShapeSheet cells for that shape (or instance) are automatically refreshed to match values in the database.
Select record on-drop event	Shape	When you drop a master or copy a shape, you're prompted automatically to select the database record that links to the shape instance.
Refresh linked shapes on document-open event	Page	Refreshes ShapeSheet cell values for all the shapes in your drawing each time you open the drawing.
Refresh based on the NOW function event	Page	Allows you to switch on or off refreshing ShapeSheet cell values for all the shapes in a linked drawing at specific intervals as defined by the NOW function.
Select database record action	Shape	Allows you to select the database record to which you want a shape linked.
Refresh shape cells action	Shape	Refreshes the values in the shape's linked ShapeSheet cells to match the values in the database.
Refresh shapes on page action	Page	Refreshes the values in the shapes' linked ShapeSheet cells to match the values in the database for all the shapes on the drawing page.
Update database record action	Shape	Updates the values in the database to match the values in the shape's linked ShapeSheet cells.
Update shapes on page action	Page	Updates the values in the database to match the values in the shapes' linked ShapeSheet cells for all the shapes on the drawing page.
Delete shape and database record action	Shape	Deletes the shape and the database record to which the shape is linked.

Related topics

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Using Lotus Notes with Visio

About using Lotus Notes with Visio

Visio supports a two-way exchange of data between Visio and Lotus Notes. You can

- Write data from a Visio shape, a custom formula, or the Properties dialog box to a Lotus Notes field.

  For example, you can combine Lotus Notes and Visio to keep track of a company's processes, such as writing and prototyping specifications. In Lotus Notes, you embed a Visio diagram for each process. Then you create a table that shows only the titles of the processes (which is data you wrote from Visio to Lotus Notes). Anyone who needs to see the process can click the flowchart's title to see the embedded Visio diagram. Then, to edit it, the user can double-click the embedded Visio diagram to start Visio.

- Read data from a Lotus Notes Field and display it in Visio.

  For example, in a timeline, you can have a Lotus Notes date field automatically update the Visio timeline.

Because of the way Lotus Notes and Visio interact, incompatibilities can arise when one of the programs is 32-bit and the other is 16-bit. The following combinations are compatible:

- 32-bit Visio products and 32-bit Lotus Notes 4.x on any 32-bit Windows platform.
- 32-bit Visio versions and Lotus Notes 3.x on Windows 95. (This combination is not compatible on Windows NT 3.51.)

Related topics

Writing data from Visio to a Lotus Notes field

You can pass data from a Visio diagram to a Lotus Notes database field. Each field in Lotus Notes that contains Visio data is based on either the Visio diagram's Properties dialog box, a shape, or a custom formula.

NOTE Make sure the fields in both programs have exactly the same name.

To include Visio data in a Lotus Notes field:

1. In Lotus Notes, set up the fields you want to fill in with Visio data. Note the names of these fields, because you will use them in Visio.

2. Choose Insert > Object, and insert a Visio drawing. You can create a new Visio drawing or insert an existing file.

3. If the Lotus Notes fields are not based on the drawing's Properties dialog box, add the shapes that will be associated with the Lotus Notes fields.

4. Select one of the shapes that will be associated with a Lotus Notes field, then choose Format > Special. Note the shape's ID (you'll use it in step 8).

    Complete this step for each shape that will be associated with a Lotus Notes field.

5. Choose Insert > Lotus Notes Fields, then, for Field Name and Direction, type a name for the field that exactly matches the name of the field you defined in Lotus Notes.

6. Check Write To Notes.

7. For Data Type, select the type of data you want to exchange: Text, Time, or Number.

8. If you select Text under Data Type, type the Shape ID from step 4. The data you write to Lotus Notes can be the shape's name, text, copyright, or data you enter in the Data 1, 2, and 3 sections of the Special dialog box.

    If you select Time or Number, enter a custom formula in the Custom Formula box.

9. Click Add, then click OK.

Here is an example that uses the Number data type (in step 8 above). In the equation below, "sheet.1" is a shape representing an office plan's perimeter. The office plan is set up in inches. The formula multiplies the width and height of the walls, then divides that total by 144 to get the square footage of the office.

```
=(sheet.1!Width*sheet.1!Height)/144
```

To include the Visio Properties dialog box data in a Lotus Notes field:

• In Lotus Notes, use field names that correspond with settings in the Visio Properties dialog box (File > Properties). The Visio drawing's properties are then automatically included.

The Properties dialog box fields are Title, Subject, Author, Manager, Company, Category, Keywords, Description, and Hyperlink Base.

Related topics

Displaying Lotus Notes data in Visio

You can read data from a Lotus Notes database field, then display it in a Visio diagram. You can also use the Lotus Notes field data in formulas.

TIP You may want to lock the Visio shape in which you place data from Lotus Notes so that users cannot edit it.

To display data from Lotus Notes in Visio:

1. In Lotus Notes, set up the fields you will read into Visio. Make sure you note the names of these fields, because you will use them in Visio.

2. In Visio, open or create a drawing with which you want to exchange data with Lotus Notes.

3. Choose Insert > Lotus Notes Fields, then, in the Field Name and Direction section, type a name for the field that exactly matches the name of the field you defined in Lotus Notes.

4. Check Read From Notes.

5. In the Data Type section, select the type of data you want to exchange: Text, Time, or Number.

For Number, choose the units for the number (such as centimeters) so that the user knows how to interpret the number. For example, a number might represent inches or centimeters; the distinction for the user may be very significant.

6. Click Add, then click OK.

7. Follow one of the next procedures to either insert the Lotus Notes field in a shape as a text field or insert it in a shape's ShapeSheet spreadsheet.

To insert a Lotus Notes field in a shape as a text field:

1. Select the shape in which you will insert the Lotus Notes data.

2. Press F2 to open the shape's text block, then place the insertion point where you want to insert the data.

3. Choose Insert > Field.

4. Under Category, select Lotus Notes Field. Under Field, select the specific Lotus Notes field. Under Format, select the way you want to view the data, then click OK.

   Data is passed between Visio and Lotus Notes when the programs are started, so the next time you open this Visio drawing file, these fields will include data from the Lotus Notes fields you inserted.

To insert a Lotus Notes field into a shape's ShapeSheet spreadsheet:

1. Select the shape, then choose Window > Show ShapeSheet.

2. Select the cell in which you want to insert the Lotus Notes field, place the insertion point in the formula bar, then choose Insert > Function.

3. Under Select Function, choose LOTUSNOTES, then click OK.

4. In the edit area, for "notename," type the name of the Lotus Notes field.

   Data is passed between Visio and Lotus Notes when the programs are started, so the next time you open this Visio drawing file, the ShapeSheet will include data from Lotus Notes.

Related topics

Creating and revising shapes

About creating your own shapes

There are several ways to create your own shapes. You can

- Draw a shape from scratch using the Visio drawing tools. For example, if you want to add a freeform arrow to a block diagram, you can draw the arrow with the freeform tool.

- Merge a shape with other shapes to create a new, unique shape. For example, if you want to create a round sign with an arrow cut out of its center, you can place an arrow shape on top of a circle, then use the Combine command to create the shape you want.

- Revise an existing Visio shape. For example, if your company uses a special Process shape in its flowcharts, you can modify the Visio Process shape, save it on the Flowchart stencil, and use it in all the flowcharts you draw.

You can revise an individual shape for use in a specific drawing, or you can revise all instances of a shape in a drawing at the same time. You can also convert a new shape you create into a master and place the master on a stencil so you can reuse the shape in many drawings.

Related topics

Drawing shapes

To draw a shape, use one or more of the drawing tools on the Standard toolbar. While you're drawing shapes, you can use the View > Toolbars > Toolbars command to hide other toolbars and display only the Standard toolbar

TIP When drawing shapes, it's often helpful to use guides and grid lines to help you position the shapes.

Drawing lines or arcs

(🖊) If you move the pencil tool in a straight line, it draws a line. If you move it in a curve, it draws an arc. Each arc is a portion of a circle; its size is determined by the distance you move the mouse.

(✏) The line tool is best for drawing shapes composed only of straight lines. To constrain a line to any 45-degree angle, hold down the Shift key as you drag.

(⌐) The arc tool draws arcs that are always one quarter of an ellipse. The direction you drag the mouse determines which way the arc bows.

To draw a line or an arc:

1. Choose the pencil tool from the Standard toolbar.

   Or choose the line tool or the arc tool.

2. Point to where you want to start the line or arc.

3. Drag to draw the line or arc, then release the mouse button.

Drawing freeform shapes

(〰) The freeform tool works like a pencil on paper. Select it and drag to draw splines and freeform curves. For smoother curves, turn snapping off before you draw (choose Tools > Snap & Glue, then under Currently Active, uncheck Snap).

To draw a freeform shape:

1. Choose the freeform tool from the Standard toolbar.

2. Hold down the left mouse button as you drag in various directions to draw a freeform shape, then release the mouse button.

Drawing rectangles and squares

(▭) The rectangle tool draws rectangles and squares.

To draw a rectangle or square:

1. Choose the rectangle tool from the Standard toolbar.

2. Point to where you want a corner of the shape.

3. Drag until the shape is the size you want, then release the mouse button.

   To draw a square, hold down the Shift key as you drag.

Drawing ellipses and circles

(⬭) The ellipse tool draws ellipses and circles.

To draw an ellipse or circle:

1. Choose the ellipse tool from the Standard toolbar.

2. Point to where you want to start drawing the shape.

3. Drag until the shape is the size you want, then release the mouse button.

    To draw a circle, hold down the Shift key as you drag.

Drawing shapes with multiple segments

Shapes with multiple segments are 2-D shapes. To draw a 2-D shape, start each new segment at one of the endpoints or at a vertex of another segment. After you complete a shape, you can add, adjust, or delete segments.

A ▣▬▬▬▬●▬▬▬▣ B

Endpoints (**A** and **B**)

A ◆▬▬●▬▬◆
      ◆ B
      ◆

Vertices (**A**) and control points (**B**)

To draw a shape with multiple segments:

1. Choose the pencil tool (✏) from the Standard toolbar.

    Or, choose the line tool (╱), arc tool (⌐), or freeform tool(〰).

2. To draw the first segment, point to where you want to start the shape. Press the mouse button and drag until the segment is the size you want, then release the mouse button. This first segment is a 1-D shape with endpoints.

3. To draw the second segment, point to the endpoint of the first segment (the pointer looks like a plus sign) and drag, then release the mouse button.

    When you are creating the second and subsequent segments, be careful not to click the endpoint of the first segment, which selects it. A selected endpoint turns magenta. Dragging the selected endpoint resizes the existing segment instead of starting a new one. (If you resize a segment, rather than draw a new one, choose Edit > Undo.)

    After you draw the second segment, the shape displays vertices instead of endpoints, to indicate that it's a 2-D shape.

4. To draw additional segments, point to the vertex at the end of the last segment you added, then drag to draw the next segment.

5. If you want to close the shape, drag the endpoint of the last segment you create over the vertex at the beginning of the first segment, then release the mouse.

    TIP You can use the freeform or ellipse tool to create a closed shape that is composed of only one segment.
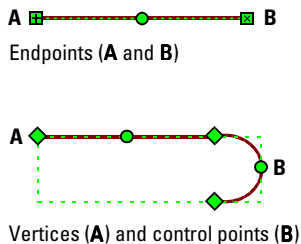
To undo a segment while drawing:

•   Before you release the mouse button at the end of a segment, draw back to the vertex at the beginning of the segment. Make sure you hit the vertex precisely or you might not completely delete the segment.

To undo several segments:

•   After you've drawn one or more segments, but before you do anything else, choose Edit > Undo. Keep choosing Undo until you've deleted all of the segments you no longer want. Segments are deleted in the reverse order in which they were drawn. By default, you can undo up to ten actions.

    You can also undo an action, such as drawing a segment, by clicking the Undo button on the Standard toolbar, or pressing Crtl+Z or Alt+Backspace.

Related topics

Merging shapes to create new ones

The easiest way to create a complex shape is to draw its simple parts, then use the Boolean operation commands to merge the parts into one complex whole. The result of a merge operation depends partly on the shape you select first (the primary shape). The primary shape's formatting is used in the resulting shape, and, in some cases, it even determines the shape of the new shape (with the Subtract command, for example). You can also use Boolean operation commands to convert polygonal lines and polygons to lines, arcs, and freeform curves (or "splines").

Merging operations create new shapes. The old shapes, including ShapeSheet spreadsheets that define smart behavior, are discarded. The new shape gets its own ShapeSheet spreadsheet.

Union

Union

Union creates a new shape from the perimeter of two or more overlapping shapes. The new shape is a set of all the points that were either in one original or another. Union is the equivalent of the Boolean operator "OR."

NOTE Take care not to use the Union command when you simply want to group shapes together. Group and Union are two separate operations in Visio and do not produce the same results. Union is also different from Combine, which deletes areas where the combined shapes overlap.

To unite shapes:

1. Arrange the shapes that you want to unite on the drawing page.
2. Select the shapes.

   (Remember that the new shape will inherit the text and formatting of the first shape you select.)
3. Choose Shape > Operations > Union.

NOTE If the shapes do not overlap, the Union command creates one shape, but the shapes appear unchanged. If a shape is open, Visio discards the open shape when you choose Union.

Subtract

Subtract

Subtract creates a new shape by "subtracting" from the primary selection the areas where subsequent selections overlap. For example, if you overlap a square and a circle and select the square, then the circle, Subtract will remove the overlapping segment of the circle from the square.
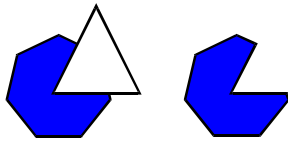
To subtract shapes:

1. Arrange the shapes you want to subtract on the drawing page.
2. Select the shapes.

   (Remember that Visio subtracts from the first shape you select.)
3. Choose Shape > Operations > Subtract.

Intersect

Intersect

Intersect forms a new closed shape from the area where selected shapes overlap, eliminating non-overlapping areas. Because Visio doesn't define specific points on a line, nothing is left if you intersect two overlapping lines.
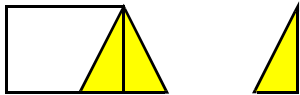
To intersect shapes:

1. Arrange the shapes you want to intersect on the drawing page.
2. Select the shapes.

   (Remember that the new shape will inherit the text and formatting of the first shape you select.)
3. Choose Shape > Operations > Intersect.

Fit Curve

Fit Curve

Use the Fit Curve command to create a spline from a polygonal line. The spline goes exactly through the polygonal line's vertices. If the polygonal line is a closed polygon, the result is a periodic (seamless) spline.

To create a spline from a polygonal line:

1. Select the polygonal line.
2. Choose Shape > Operations > Fit Curve.

Custom Fit

Use the Custom Fit command to reduce the number of segments in clip art or other shapes you import. Custom Fit makes an imported shape easier to edit and may reduce its size.

When a shape is imported, the exchange process converts it into a relatively un-intelligent format. For example, an imported clip art shape is a dense series of points that is almost impossible to edit. Using the Custom Fit command, you can convert polygonal lines into splines. By dragging the control points on a spline, you can edit the converted clip art shape.

When you use the Custom Fit command, you can specify the error tolerance. The more loosely you set the tolerance (that is, the greater the acceptable error), the more likely you are to reduce the size of the converted shape.

Some shapes on which you use the Custom Fit command occupy less disk space because Custom Fit replaces the many LineTo rows in the shape's ShapeSheet spreadsheet with fewer SplineKnot rows. When enough LineTo rows are replaced, the shape requires less disk space.

To convert an imported object into an editable format:

1. Select the shape. If the shape is a group, choose Shape > Grouping > Ungroup to ungroup it.

2. Choose Shape > Operations > Custom Fit.

3. Choose the options you want, then click OK.
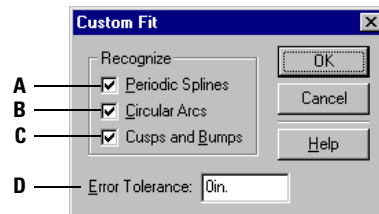
A Check to create a periodic (seamless) spline if the original shape is closed and smooth. If Cusps And Bumps is unchecked, the original shape need not be smooth.

B Check to replace polygonal line vertices with either line segments or circular arcs. For this option to work, the polygonal line vertices must be close to a line segment or circular arc within the specified tolerance.

C Check to preserve sharp angles and other features in the original shape.

D Type a tolerance value. The looser the tolerance (that is, the higher the amount of error tolerated), the simpler (less data, smaller disk size) the arc or spline. Zero tolerance results in no reduction in data. The typical error tolerance for converting clip art should be about 0.1 mm (.004 inches).

If you check Periodic Splines, uncheck Circular Arcs and Cusps and Bumps, and type an Error Tolerance of zero, you convert a polygonal line to a spline that goes exactly through the polygonal line's vertices. If the polygonal line is closed (that is, if it's a polygon), the result is a periodic spline. These particular Custom Fit settings are equivalent to choosing the Fit Curve command.
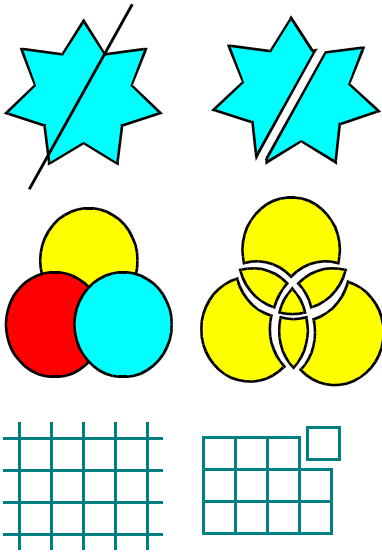
Fragment

The Fragment command can break a shape into smaller parts. You can also use it to create new shapes from intersecting lines or from 2-D shapes that overlap. The Fragment command provides an ideal way to create Venn diagrams and marketing pyramids. Fragment can:

- Divide selected shapes into smaller shapes.
- Create a new closed shape where two or more closed shapes overlap.
- Create new shapes from the enclosed spaces of three or more intersecting lines.

To break a 2-D shape into smaller parts:

1. Draw lines through the shape where you want to break it.
2. Select the shape and the lines.
3. Choose Shape > Operations > Fragment.

To create new shapes where 2-D shapes overlap or where lines intersect:

1. Select the overlapping shape or intersecting lines.
2. Choose Shape > Operations > Fragment.

TIP After you fragment shapes, delete the pieces you don't need.

Fragment

Trim

You can create new shapes from existing intersecting shapes by trimming them. Trim resembles the trim operation in Autodesk AutoCAD, although in Visio you can trim more than two objects. Trim splits selected objects at their intersections, including where a shape intersects itself. It creates a new shape for each piece, preserving the styles. If closed shapes are split open, they lose their fill.
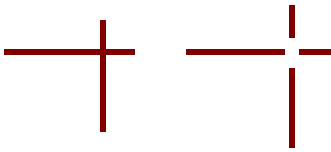
To trim shapes:

1. Select the shapes you want to trim.
2. Choose Shape > Operations > Trim.

Trim

Join

Join assembles individual 1-D segments into one or more continuous paths. The number of paths depends upon the configuration of the selected shapes. For example, if the segments lie along a straight line, the new shape will have one path. If the segments lie in the form of a 2-D shape such as a rectangle, the new shape will become a closed 2-D shape that you can fill.
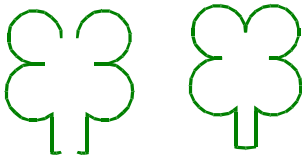
Join

To join shapes:

1. Select the segments you want to join.

2. Choose Shape > Operations > Join.

Combine

Combine creates a new shape from selected shapes. If the selected shapes overlap, Visio cuts out, or discards, the area where they overlap. This creates holes in the new shape that make the drawing page grid visible through the shape. Combine converts multiple shapes into one shape with multiple paths, represented by the same number of geometry sections in the ShapeSheet spreadsheet (rather than multiple ShapeSheet spreadsheets).

In this example, selecting the large rectangle first makes it the primary shape, so that when the two rectangles are combined, the small rectangle will be discarded, leaving a hole in the large rectangle.

You can also combine 1-D shapes with each other and combine 1-D and 2-D shapes. In these cases, Visio creates one shape from the selected shapes, but the new shape might not look different from the old ones. The difference is that the new shape has one ShapeSheet spreadsheet with multiple sections so that when you apply a style, such as a fill, the style formats the entire shape. This is different from using the Group command, where each shape in the group retains its own ShapeSheet spreadsheet, in addition to the group's ShapeSheet spreadsheet.

NOTE Take care not to use the Combine operation when you simply want to group shapes together. Group and Combine are two separate operations in Visio, and do not produce the same results. Combine is also different from Union, which creates a new shape from the perimeter of two or more overlapping shapes, without deleting any areas of the shapes.

For example, to create a picture frame shape (a rectangle with a hole in the middle through which you can see what's beneath), place a small rectangle in the middle of a larger one. Select the large rectangle first, then the small one, and then choose Shape > Operations > Combine to combine them.

To combine shapes:

1. Arrange the shapes you want to combine on the drawing page.

2. Select the shapes.

   (Remember that the new shape will inherit the shape and formatting of the first shape you select.)

3. Choose Shape > Operations > Combine.

Related topics

Offsetting shapes to create parallel lines and curves

The Offset command creates a set of parallel lines and curves to the right and left of the original shape. For example, you can create a representation of a two-way road by offsetting a line.

You can set the distance you want between the original shape and the offset shapes.

The Offset command reproduces the points of a line at a fixed distance from the line and then attempts to connect those lines, based on where they intersect. If the offset lines don't intersect, Visio extends them until they do.

The Offset command positions the offset shapes on either side of the original shape, at a distance that you specify.

When creating an offset shape such as the one left of this angle (**A**), Visio extends the duplicate lines to make them meet.

When creating an offset shape such as the one right of this angle (**B**), Visio deletes a portion of the duplicated lines to prevent them from crossing.
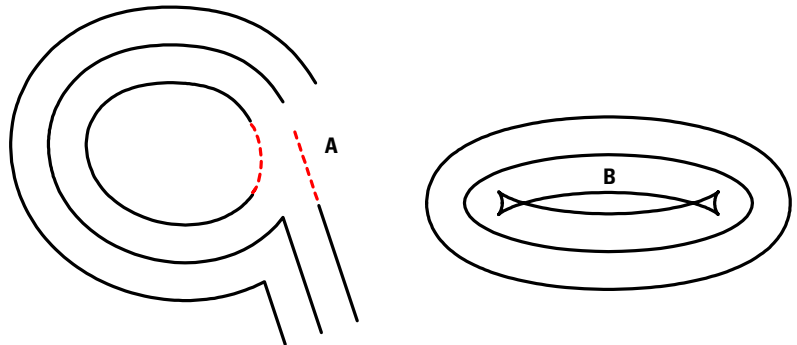
In this example (**A**), extending the arc and the line doesn't result in an intersection, so Visio creates offset duplicates of each shape and leaves them unconnected.

If the offset is wide, especially inside curves, the offset may not look like the original (**B**).

Once you've offset a shape, the two new shapes each have their own ShapeSheet spreadsheets and you can work with them independently. For example, if you only want one duplicate, you can delete the other.

To create an offset shape:

1. Select the shape from which to create the offset shape.

2. Choose Shape > Operations > Offset.

3. Type a value for the distance you want between the duplicate and the original, then click OK.

Related topics

Revising existing shapes

You can revise any Visio shape or shape you draw from scratch as long as the shape isn't locked to prevent changes.

To revise a shape, select it with the pencil tool ( ), then drag, add, or delete vertices. To change curves, drag a control point or a point's eccentricity handles.
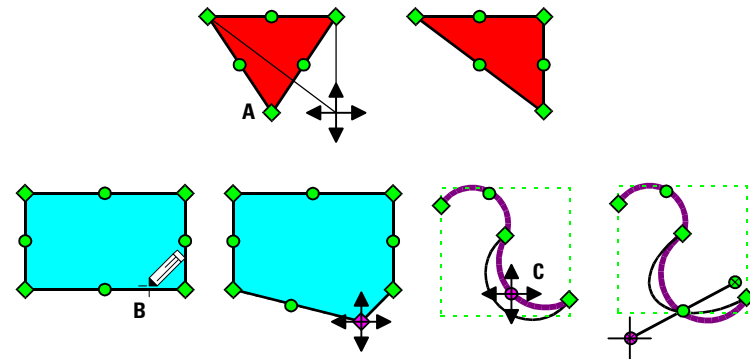
To reshape a shape, you can drag a vertex (**A**), add, then drag, a vertex (**B**), or drag control points to edit curves (**C**).
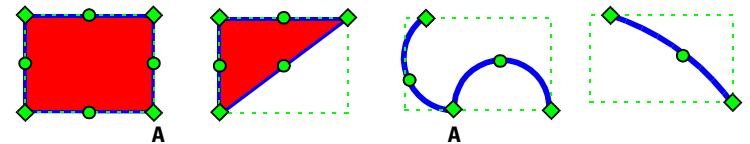
Deleting vertex **A** in either of these shapes deletes the segment with which the vertex is associated. The remaining segments are reshaped accordingly.

Methods for revising shapes

To	Do this after selecting the shape with the pencil tool
Select a vertex or control point	Click the vertex or control point you want to select. The selected item turns magenta.
Reshape angles	Select one or more vertices and drag. (Hold down the Shift key to select more than one.)
Add a segment	Point to where you want to add a segment, hold down the Ctrl key, and click.
Delete a segment	Select a vertex associated with the segment you want to delete, then press the Delete key.
Change the curvature of an arc or freeform curve	Drag a control point until the segment looks the way you want.
Change the eccentricity (or symmetry) of an arc	Select a control point, hold down the Ctrl key, and drag the pointer slightly away from the point to display the eccentricity handles, then release the mouse button. Drag one handle farther from or closer to the control point or rotate it around the control point until the arc is shaped the way you want.
Move the end of a freeform curve	Select the curve, then drag a handle associated with the curve's endpoint.

TIP If you select a shape with the pencil tool and don't see any vertices or control handles, the shape is probably a group. To find out if the shape is a group, select it, choose Format > Special, then check the Special dialog box to see if Group is listed for Type. To revise the group, select it, then choose Edit > Open Group. A group window opens in which you can revise the shape using the pencil tool.

Related topics

Revising several identical shapes at once

When you create a drawing, Visio creates a stencil specific to that drawing file called the "local stencil." Each time you drag a master to the drawing page, Visio copies the master to the local stencil, and then creates an "instance" of the master on the drawing page. Instances inherit formatting and other properties from masters on the local stencil.
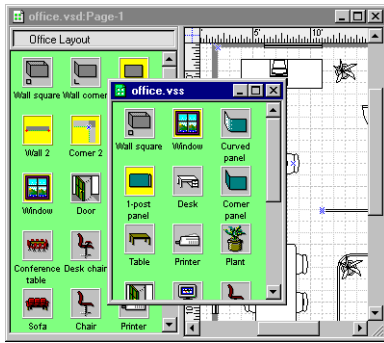
When you first open the local stencil, it lines up along the left side of the screen. You can drag the stencil's title bar to move it anywhere you want, and you can drag a side or corner to change the stencil's size.

In the local stencil, you can

- Track which shapes you've used in your drawing.

- Quickly revise all instances of a shape on all pages in a drawing file by revising the master on the local stencil.

- Save the local stencil as a standalone stencil so you can distribute it to others who want to use the shapes in other drawings.

- Add shapes to the local stencil directly to make them easier to reuse later.

To open a local stencil and display the shapes you've used in your drawing:

- Choose Window > Show Master Shapes.

Revising all shape instances at once

Local stencils provide a way for you to update all instances of a shape at once. Each shape instance in a drawing is linked to its master in the local stencil, so to change all shape instances at once, you simply modify the master. For example, in an organization chart, if you want to change the color of all the Position shapes' text to blue, you can simply modify the Position master on the local stencil. All instances of the Position shape in the drawing inherit the changes.

Shape instances in the drawing remain linked to their masters in the local stencil unless you perform an action that severs the link, such as ungrouping the shape in the drawing. In this case, a message appears onscreen letting you know the action will sever the link, and you can choose to continue or cancel the action.

NOTE In some cases, applying local formatting to a shape instance on the drawing page may break that individual attribute's link to the master on the local stencil. For example, if you resize an instance on the drawing page and then, in the local stencil, size its master, all instances except the one you resized manually inherit the new size.

To revise a master on the local stencil and all of its instances on the drawing page:

1. Open the drawing you want to modify, and choose Window > Show Master Shapes.

2. Click the local stencil's title bar to make sure it's the active window, then double-click the master you want to modify to open it in the master drawing window.

3. In the master drawing window, revise the master.

   When you're finished revising, close the master drawing window by clicking the close box. When Visio asks if you want to update the master and its instances, click Yes.

   The instances of the shape update to show the changes.

Saving a local stencil for use in other drawings

You can save a local stencil as a standalone stencil (.vss) file. After you save it, you can use it with any drawing, or distribute it, just as you do stencils that come with Visio products.

To save a local stencil as a standalone file:

1. Click the local stencil's title bar to make it the active window.

   If the local stencil isn't open, display the drawing to which it's associated, then choose Window > Show Master Shapes.

2. Choose File > Save As, then, in the Save As dialog box:

   Under Save In, find the folder in which you want to save the stencil. (If you save the stencil in a Solutions sub-folder, it appears when you choose File > Stencils.)

   Under File Name, type a name for the stencil.

   Under Save As Type, select Stencil (*.vss).

   Under Save, uncheck the Workspace box if it's checked.

3. Click Save.

Adding shapes to the local stencil

You can add shapes you draw to the local stencil. Not only does this make revising instances of those shapes easier, it also makes it easy to quickly reuse a shape by dragging it from the local stencil. If you plan to add a shape you draw to the local stencil, it's best to do so before duplicating and copying the shape—revising the shape on the stencil doesn't revise copies of the shape that are on the page before you add the shape to the local stencil.

To add a shape to the local stencil:

1. Open the local stencil by choosing Window > Show Master Shapes. To arrange the windows, choose Window > Tile.

2. Press Ctrl, then drag the shape and drop it onto the local stencil.

   TIP To align the new master shape icon with the existing ones, right-click the green stencil background, then choose Arrange Icons.

Related topics

Creating shapes for charts

Most charts use bars or lines to compare amounts or indicate change. By creating an extendable or stackable shape, you can show an amount and at the same time add special effects to charts. For example, you can use the People shape included with Visio to indicate an increase in employees. When you stretch the shape, the people duplicate. Or you can use the Growing Flower shape to indicate a company's growth. When you stretch the shape, the flower's stem grows longer.

Visio includes stackable shapes, such as People and Stack Of Papers, and extendable shapes, such as the Growing Flower and the Pencil. You can also create your own stackable or extendable shapes.

Stackable shapes

You can create a stackable shape from any Visio shape or piece of clip art. Stackable shapes can stack horizontally or vertically. You can fix the number of shapes in a stack or make the number change as the stack is stretched. Shapes in a stack can have spaces between them and their alignment can vary.
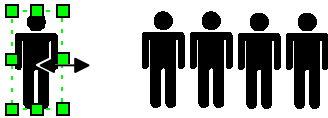
When you increase the size of a stackable shape, the shape duplicates itself.

To create a stackable shape:

1. Drop the shape you want to stack onto the drawing page. Make sure the shape is selected.
2. Choose Tools > Macro > Business Diagram > Chart Shape Wizard.
3. On the first wizard screen, click Next. On the second screen, choose Stackable Shapes, then click Next.
4. On the third screen, choose the options you want. Click More Info if you need help with an option.

   NOTE The higher the value you enter for Number Of Shapes, the more disk space the drawing will occupy. For each shape in the stackable shape, Visio adds a new Geometry section to the ShapeSheet spreadsheet.
5. On the last wizard screen, click Finish.

TIP You can modify a stackable shape after you've created it. Right-click the shape, then choose Configure to change the height, the width, the offset between the shapes, or the stack's background color.
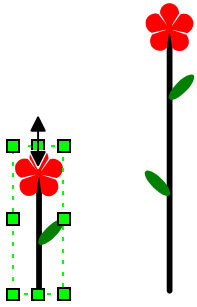
When you increase the size of an extendable shape, only one part of the shape extends.

Extendable shapes

The extendable shapes that you create can be two- or three-part shapes. Each part can be a shape from a Visio stencil, a shape you draw, or a piece of clip art. Where you place the parts determines which part extends. In a two-part shape, the left (for horizontal shapes) or bottom (for vertical shapes) part extends. In a three-part shape, the middle part extends. Simple shapes make the best extendable parts. Complex shapes may distort when they extend. Extendable shapes can be solid or they can include gaps between the parts.

To create an extendable shape:

1. Assemble the parts of the extendable shape you want to create. Place the extendable part on the left, for a two-part shape, or in the middle, for a three-part shape. Click the drawing page to make sure no shapes are selected.

2. Choose Tools > Macro > Business Diagram > Chart Shape Wizard.

3. On the first wizard screen, click Next. On the second screen, select Extendable Shapes, then click Next.

4. On the third screen, choose the options you want, then click Next.

5. Follow the instructions in the Select Shapes dialog boxes.

6. On the last wizard screen, click Finish.

TIP You can modify an extendable shape after you've created it. Right-click the shape, then choose Configure to change the height, width, or spacing between the parts.

To create an extendable shape from parts of a single shape:

1. Drop the single shape you want to use onto the drawing page.

2. Select the shape, then choose Edit > Copy.

3. Choose Edit > Paste Special.

4. Choose Windows Metafile Data, then click OK.

5. Repeat steps 3 and 4 to make more Windows Metafile copies of the original shape. Make two copies if you're creating a two-part extendable shape. Make three copies if you're creating a three-part extendable shape.

6. Choose the crop tool from the Tools toolbar and crop each Windows Metafile copy until it looks like the part of the extendable shape you want it to represent.

7. Choose Tools > Macro > Business Diagram > Chart Shape Wizard. Follow the steps described above for creating an extendable shape.

Related topics

Creating master shapes

If you want to create a new shape and reuse it in many drawings, create the shape as a master. To create a master, you can

- Convert a shape to a master by moving it onto an existing Visio stencil or onto a new stencil you create.
- Develop a new master from scratch.
- Revise an existing master.

Before you can create a master, you must open a stencil as an original file, with read/write access. Normally, stencils open with read-only access. To work with a read-write stencil while maintaining the original, open a copy of the original.

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To open an original stencil:

NOTE You cannot open an original stencil if a read-only copy of the stencil is open already. If a read-only copy of a stencil is open, close it, then open the original.

1. Choose File > Stencils > Open Stencil.

   You can also click the open stencil button () on the Standard toolbar.

2. Open the folder that contains the stencil you want.

3. Select the stencil to which you want to add the new shape.

4. Click Original in the Open section, then click Open.

   The stencil window opens, undocked, with read/write access.

TIP To open a copy of the original stencil, click Copy instead of Original in step 4.

Converting shapes to masters

You can use shapes you draw or revise, or objects from other applications, as masters. You may not be able to edit an object, however, in all the ways you can edit a Visio shape.

When you drag a shape to a stencil, a master shape icon based on the shape and a default name for the master appear in the stencil window. You can then name the master, align its name, choose options for the icon size, and write a prompt that provides information about how to use the master.

To convert a shape to a master:

1. In the drawing window, display the shape you want to convert to a master, or draw a shape to convert.

2. Open the stencil file in which you want to store the new master.

   Make sure to open the original stencil or a copy.

3. Click the drawing page to make it active, then drag the shape from the drawing page and drop it on the stencil. You can create a copy of the shape by holding down the Ctrl key while you drag.

   The shape icon appears, with a label "Master.X," where X is a number representing the number of shapes on the stencil.

4. Choose View > Arrange Icons.

   Visio rearranges the existing icons to align the new icon.

5. Choose File > Save to save the changes to the stencil.

Developing masters from scratch

When you develop a master from scratch, you can change or specify the way the master displays in the stencil. For example, you can rename the master's icon and choose options for how the name aligns.

TIP You can also change the way any master on an original stencil displays by right-clicking the master and choosing Properties.

To develop a new master from scratch:

1. Open the stencil file to which you want to add a master or open a blank stencil.

   Make sure to open the original stencil or a copy.

2. With the stencil selected, choose Master > New Master.

3. Specify characteristics for the master:

   In the Master Name section, specify the name of the new master and how to align the name.

   In the Icon section, choose an option for the size and how to update the master shape icon.

   In the Prompt section, type information about the master that appears when you point to it.

   For Match Master By Name On Drop, check to preserve the formatting you've applied to the stencil's masters.

4. Click OK.

   A blank master shape icon appears in the stencil window. (You may need to scroll to see it.)

5. Choose Master > Edit Master, or double-click the master to open the master drawing window.

6. Create the master.

   You can create it just as you would in a regular drawing page by using shapes from different stencils, drawing the shape with the drawing tools, or pasting an object from another application.

7. Click to close the master drawing window. When Visio prompts you to update the master, click Yes.

8. While the stencil is still active (that is, the stencil title bar is blue), choose File > Save to save the changes to the local stencil.

Related topics

Revising existing masters

You can revise the way an existing master will look when you drop it on the drawing page by dragging, adding, or deleting vertices, or by editing the master's text. For example, you can add arms to an office chair master or change its model number.

To revise every instance of a master in a drawing, edit the master stored in the local stencil. When you edit the master locally, you change each instance of the shape in the drawing file. You do not, however, change the master in any standalone stencil you may have used to create the drawing.

You can also revise a master on a standalone stencil so that every time you use that stencil to create a drawing, the revised master appears on the local stencil.

If you no longer need a master, you can delete it. Deleting a master breaks the connection between the master and any instances in a drawing.

To revise the way a master will look on the drawing page:

1. To revise a master on the local stencil, make sure the drawing window is active by clicking the title bar, then choose Window menu > Show Master Shapes to display the local stencil.

   To revise a master on a standalone stencil, open the stencil as an original or as a copy that contains the master you want to change, then click in the stencil window to make it active.

2. Double-click the icon of the master you want to edit, or select it, then choose Master > Edit Master.

   The master opens in the master drawing window.

3. To modify the master, use the same tools and techniques that you use to create and edit shapes in a drawing.

4. When you've finished revising the master, click the close box to close the master drawing window.

To delete a master:

1. Open the stencil file that contains the master you want to delete.

   Make sure to open the stencil as an original or a copy.

2. Select the stencil window, then select the master.

3. Choose Edit > Clear.

   When Visio prompts you, click OK to delete the master or Cancel to cancel the deletion.

4. Choose File > Save.

Related topics

Saving shapes you create on stencils

It's worthwhile to create a new stencil if

- You've created shapes of your own that you plan to reuse or share with others.
- You frequently use shapes from several different Visio stencils, and you want to consolidate them on one stencil.

Creating a custom stencil involves either adding or deleting shapes from an existing Visio stencil, or building an entirely new stencil using shapes that you create from scratch and save in the stencil file.

There are two types of stencils:

- A standalone stencil is a stencil file with the extension .vss that can be opened separately or with a template. If you save a stencil with a template, the stencil opens with the template, along with a drawing page that has the scale, styles, and other features appropriate for the shapes on the stencil.

  When you add or edit masters in a standalone stencil, the new or revised masters become available for any new drawing you create using that stencil or a template that opens the stencil. Instances of the masters in existing drawings are not affected.

- A local stencil is a stencil stored in a drawing file. It contains copies of the masters used in that drawing file.

  When you add or edit masters in a local stencil, the changes affect only that drawing file. The masters are linked to their instances in the drawing, so changes you make to masters in a local stencil are reflected in each instance of the shape in the drawing.

Methods for creating new stencils

To	Do this
Base a new stencil on an existing stencil	Choose File > Stencils > Open Stencil. In the Open Stencil dialog box, open the folder that contains the stencil on which you want to base the new stencil. Select the stencil and, in the Open section, click Copy. Click the Open button.
Create a new stencil from scratch	Choose File > Stencils > Blank Stencil.
Create a new stencil from a drawing file's local stencil	With the local stencil window selected, choose File > Save As, type the file name you want, choose Stencil (*.vss) for Save As Type, then click Save.
Copy a master from one stencil to another	Open both stencils, then drag the master from one stencil to another.
Move or copy a shape from the drawing page to a stencil	To move the shape, drag it from the drawing page to the stencil. To copy the shape, hold down the Ctrl key as you drag the shape.
Change the order of the stencil's icons	Open the original stencil file, then drag each master shape icon to arrange them in the order you want.
Align the icons in rows on the stencil	Open the original stencil file, then choose View > Arrange Icons to align the icons vertically and horizontally.
Set the stencil so that its icons stay in rows even when the window is resized or when icons are added or deleted	Open the original stencil or a copy, then right-click the stencil and choose Auto Arrange from the shortcut menu.
Save a new stencil as a local stencil	Save the drawing that includes the local stencil. The stencil is stored in the drawing. Choose File > Save As, choose Drawing (*.vsd) for Save As Type, name the file, then click Save.
Save a new stencil as a standalone stencil	Click the stencil title bar to make it active. Choose File > Save As. For Save As Type, choose Stencil (*.vss), name the file, then click Save.

Related topics

Adding hyperlinks to shapes and drawings

About using hyperlinks

You can add a hyperlink, or jump, to each Visio shape and drawing page. The link can jump to

- Another page in the same Visio drawing.
- Another Visio drawing.
- A non-Visio document.
- A World Wide Web location (URL).

For example, from a process shape in a flowchart, you can jump to a drawing page that shows the detailed steps the process involves.

After you add a link, right-click the shape or drawing page and choose Hyperlink > Open to jump to the destination. In full-screen view, you can click the shape or page to open the hyperlink. (Keep in mind that, for the URL links to work, you must have a Web browser installed on your computer.)

If you intend to save a drawing as HTML pages using the Save As HTML add-on, you can preserve your hyperlinks as image maps.

In a Web browser, the linked shapes will be "hot." (Links to other Visio drawing pages remain active in the HTML file only if you save the page that the shape is linked to, as well as the page the linked shape is on, in HTML format.)

You can also paste objects created in other applications into Visio drawings as hyperlinks and paste Visio shapes and drawings into other documents as hyperlinks.

Related topics

Adding, modifying, and deleting hyperlinks

When you add a navigational link, or "jump," to a shape or drawing page, you can navigate to the link by right-clicking the shape or page, then choosing Hyperlink > Open. Once you've added a link to a shape or page, you can modify or delete the link.

Relative versus absolute paths to hyperlinks

When you link a shape or page, you can decide whether the path to the link should be relative or absolute. A relative path describes the location of the linked file in relation to the Visio drawing or a hyperlink base. You can move the Visio drawing and the linked file together (that is, move the entire path structure) without breaking the link. An absolute path spells out the exact location of the linked file in terms of drives, directories, and folders. You can move the Visio drawing file without affecting the link but if you move the linked file, you must reset the path. To specify an absolute path, uncheck Use Relative Path For Hyperlink.

A Specifies the file or Web site you want to link to. You can either type in a path or URL or click Browse and navigate to the file or Web site. If you are using a relative path, you can type the name of the file.

B Indicates the full or relative path to the file or URL. Visio updates this path as you type data in the dialog box.

C Indicates the base path, which you can specify in the Properties dialog box for the file. If this is not present in the dialog box, the path to the current document will be used.

D Specifies the location in a file or Web site that you want to link to, such as a specific page or anchor. If you are linking to a Visio drawing, you can click Browse and select a drawing page from a list.

E Specifies a name for the link that appears in the Hyperlink section of the ShapeSheet for the shape or page. For example, "Link to our pricing Web site."

F A relative link describes the location of the linked file in relation to the Visio drawing. You can move the Visio drawing and the linked file together (that is, move the entire path structure) without breaking the link. An absolute link spells out the exact location of the linked file in terms of drives, directories, and folders. You can move the Visio drawing file without affecting an absolute link, but if you move the linked file you must reset the path. To specify an absolute link, uncheck Use Relative Path For Hyperlink.
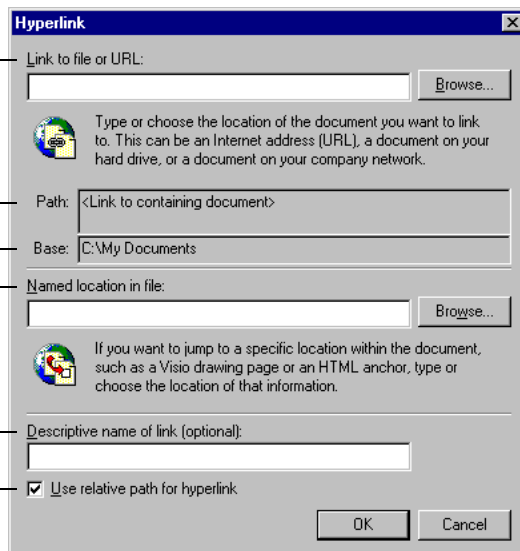
You can create a hyperlink to a Visio drawing, a Web site, or another document, such as an Excel spreadsheet.

If you want to use a relative path that is not based on the location of the Visio drawing, you can set a base path in the Properties dialog box for the file. Choose File > Properties, then type the base path that you want in the Hyperlink Base box. This base path is then displayed in the Insert Hyperlink dialog box.

To link a shape or page to another Visio drawing page, a Web URL, or a non-Visio file:

1. In Visio, create or open a Visio drawing. To add a link to a page, display the page with nothing selected. To add a link to a shape, select the shape.

2. Choose Insert > Hyperlink.

3. Under Link To File Or URL, click Browse to locate the local file or Internet address (URL) you want to link to. The path to the linked file is displayed under Path.

    If you want to link to a shape or page in the current drawing, skip to step 4.

4. Optionally, if you're jumping to a Visio file or URL, under Named Location In File, type the page name within the file or anchor on the Web page you want to link to. If you're jumping to the current open file or another Visio file that is open, you can click Browse to see a list of the pages in that file.

5. Under Descriptive Name Of Link, type a name for the link that identifies the location you're linking to.

6. Choose whether you want a relative path for the hyperlink, then click OK.

NOTE If you've set a base path for the hyperlink in the Properties dialog box for the file, that path will appear as the Base in the Hyperlink dialog box.

To paste a Visio shape or drawing into another document as a hyperlink:

1. Right-click the hyperlinked shape, then choose Hyperlink > Copy Hyperlink.

2. In the destination document, choose Edit > Paste As Hyperlink.

NOTE Some applications, such as Microsoft Office 95 applications, do not support the Paste As Hyperlink command.

To paste an object into Visio as a hyperlink:

1. After you've copied the hyperlinked object, go to the drawing page on which you want to paste it.

2. Choose Edit > Paste As Hyperlink.

To modify a hyperlink:

1. To modify a link on a page, display the page, with nothing selected. To modify a link on a shape, select the shape.

2. Right-click the page or shape, then choose Hyperlink > Edit Hyperlink.

3. Make the changes you need, then click OK.

To remove a hyperlink from a shape or page:

1. In Visio, create or open a Visio drawing. To remove a link from a page, display the page with nothing selected. To remove a link from a shape, select the shape.

2. Choose Insert > Hyperlink.

3. Click Remove Link, then click OK.

Related topics

About customizing shape behavior .... *Visio Help*

Jumping between hyperlinked shapes and pages

You always jump from a linked shape or drawing page by right-clicking the shape or page, then choosing Hyperlink > Open. How you get back to the original location in Visio depends upon the destination of the jump.

To activate a hyperlink on a shape or page:

• Right-click the shape or page and choose Hyperlink > Open. If you want to be able to see both the drawing page and the link destination, choose Hyperlink > Open In New Window. If you are in full screen view, click the shape or page.

To go to the next hyperlink:

• Click the forward tool (➡) on the Web toolbar or press Alt+right arrow.

To return from another Visio page in a drawing or another document, application, or Web site:

• Click the back tool (⬅) on the Web toolbar or press Alt+left arrow.

NOTE You can only use the forward and back tools to navigate between a Visio drawing and other ActiveX documents, such as other Visio drawings, Office 97 documents, and HTML pages loaded ito Internet Explorer 3.01 and later.

Related topics

Appendix

Visio wizards and other tools

Wizards and other automated tools in Visio create special drawing types from scratch, automate routine tasks, and perform unique functions.

When you open certain templates, such as the Project Timeline Wizard Template, a wizard that you can use to create the drawing starts automatically. When you open other templates, Visio adds a command you can choose to start a wizard to the top of the Tools menu. For example, when you open the Organization Chart Template, Visio adds a command so that you can choose Tools > Organization Chart Wizard.

Regardless of the template you start with, you can run any wizard or automated tool by choosing Tools > Macro > Macros.

TIP You can display background information about certain wizard screens by clicking the More Info button onscreen.

Visio wizards

Wizard	What it does	How you run it
Build Region	Assembles selected geographic shapes into a region.	Tools > Macro > Maps > Build Region
Chart Shape Wizard	Creates stackable and extendable shapes you can use to add special effects to charts.	Tools > Macro > Business Diagram > Chart Shape Wizard
Custom Properties Editor	Edits, adds, or deletes custom property fields from master shapes.	Tools > Macro > Custom Properties Editor
Database Export	Generates a database table that reflects the data in custom property and other ShapeSheet cells.	Tools > Macro > Database > Database Export

Table continued on next page.

Wizard	What it does	How you run it
Database Wizard	Links Visio shapes and drawings to databases created in ODBC-compliant database programs. After establishing links, you can pass information between a drawing and database, create drawings that represent database tables, and generate new master shapes that represent data stored in database records.	Tools > Macro > Database > Database Wizard
Export [data]	Exports an inventory report based on shape properties. The Export [data] command is available in the network diagram, office layout, and organization chart templates.	Tools > Export [data]
Flowchart-TQM Diagram Wizard	Guides you through the process of laying out and formatting a Cause/Effect, Force Field, Top Down, or Cross Functional (Rummler-Brache) diagram.	Tools > Macro > Flowchart > Flowchart-TQM Diagram Wizard
Office Layout Wizard	Guides you through the process of setting the drawing scale, choosing the page size and orientation, and creating the basic wall structure for an office layout diagram.	Tools > Macro > Business Diagram > Office Layout Wizard
Organization Chart Wizard	Generates an organization chart from a data file in Microsoft Excel (.xls), Org Plus (.txt), or comma or tab-delimited text (.txt) format, or from a database table created in an ODBC-compliant program. Or, generates a basic organization chart structure into which you can add data.	Tools > Macro > Business Diagram > Organization Chart Wizard
Page Layout Wizard	Automates setting up the drawing-page size, orientation, and scale. Assists you in adding a title block and border to the pages in a new or existing drawing.	Tools > Macro > Visio Extras > Page Layout Wizard.
Print ShapeSheet	Opens the Print ShapeSheet dialog box, where you can choose which sections of the ShapeSheet to print and whether to print the ShapeSheet to a printer, the Clipboard, or a file.	Tools > Macro > Visio Extras > Print ShapeSheet
Project Timeline Wizard	Generates a project timeline from a data file in Microsoft Excel (.xls), comma- or tab-delimited text, or Microsoft Project Exchange (.mpx) format. Or, generates a project timeline structure into which you can enter data.	Tools > Macro > Business Diagram > Project Timeline Wizard
Property Reporting Wizard	Generates inventory reports, such as bills of materials or equipment and furniture inventories, and numeric reports, such as cost totals or averages, from data stored in shapes.	Tools > Property Report
Shape Explorer	Locates specific shapes and stencils in Visio products. You can open stencils and templates from within Shape Explorer.	Tools > Macro > Shape Explorer
SmartShape Wizard	Customizes the appearance or behavior of a selected shape's text, connectors, notes, or protection.	Tools > Macro > Visio Extras > SmartShape Wizard
Stencil Report Wizard	Generates a Visio drawing of the masters on a selected stencil.	Tools > Macro > Visio Extras > Stencil Report Wizard

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